

charge of eleven of these observatories. This remuneration is small; but it has already had the effect of inducing increased attention to observatory duty. The Government has also sanctioned the carrying out of a plan of instruction of the Native Assistants at these observatories, which I suggested. This plan is, that these Assistants should come to Roorkee for a period not exceeding one month to be instructed in the work of a meteorological observatory. This plan has already been carried out with the Assistants at Meerut, Agra, Futtehghurh, and Allahabad, and will be carried out at the other stations as soon as arrangements can be made to spare these men from their duty. Each of the Assistants who has been to Roorkee was put through a training in the general treatment and reading of the instruments, as well as in calculating out the ordinary deductions from the readings; before leaving they were made to pass a satisfactory practical examination as to the knowledge they had acquired.

The only change I would desire to make in the principal stations is to remove the observatory from Nynee Tal to the neighbouring new hill station Raneekhet. Nynee Tal is not a favorable site for a meteorological observatory; and, indeed, it should never have been selected as such. Among its many drawbacks, there is one which alone is sufficient to condemn it. The station is situated in a valley shut in on all sides but one,—a kind of *cul de sac*, with its open end to the south-east;—and, as the observatory is placed in the lower part of the shut end of the valley, the wind can only reach the instruments from the south-east, where alone there is any access for it. Such a convenient wind registration is impossible. No doubt a better site for the observatory might be obtained without taking it from Nynee Tal altogether; but the consideration that the goodness of a site should include proximity to the residence of at least the Native Assistant, if not also to that of the Assistant in charge, renders it almost needless to seek another site. Nynee Tal. I have put myself in communication with the Executive Engineer at Raneekhet, who informs me that

a good site for the observatory can be obtained and there is an efficient officer who can take charge of it. Should the Government see no objection to the transfer, I propose to carry it into effect at the end of this hot weather.

I would here further add, that if any addition to the number of existing observatories can be granted, I would propose that one be established at either Nagode or Nwargat; but there is no immediate need for this, and it may be considered at a future period.

Second Class Stations or Returns from Military and Civil Hospitals.—Ten stations sent registers, but only seven of these furnished them for every month of the year. The registers furnished by these stations are as full as the instruments and means at the disposal of the officers in charge of them will allow. They generally include only temperature and rain registers, made by instruments of the accuracy of which nothing whatever is known. Other weather not recorded, as direction of the wind, occurrence of storms, &c., recorded from simple inspection. Many of these notes, however, have been of value to me in the compilation of the monthly abstracts; and I would here tender my thanks to the various Regimental and Civil Medical Officers who have furnished them to me and among these; I would again name Dr. J. C. Bow, the Garrison Surgeon of Chunar, who takes an interest in meteorological enquiries such as is not often met with in India.

During the current year I propose to discontinue registers from Almorah, Moradabad, and Muttra, as, in the last establishment of principal stations at no great distance. On these, they become of less importance as observing stations.

Lectures at the Agra Medical School.—One of the teachers of the school, Meer Ulfat Ali, who is also the assistant at the Observatory, was good enough at my request to give a series of practical lessons to the senior students.

mode of recording meteorological instruments. When, therefore, I visited Agra in December last, I found that a good deal of instruction had already been communicated; but that several subjects, on which the teacher himself was not very clear, remained for explanation. Instead, therefore, of lecturing over the whole subject, as I had done in previous years, I confined myself to supplementing the work of Meer Ultraf Ali, and conducting a full oral examination on the elements of meteorology, and of the use and construction of meteorological instruments, during which there was abundant opportunity for comment and illustration of the subject. These examinations were held on the 14th, 15th, and 16th of December.

On the 11th of March a written examination was held, when thirty students took part in the competition for three money prizes which have been sanctioned by Government for proficiency in meteorology. The Oordoo examination paper which was set contained twenty-five questions. So many questions as this were given in order that every candidate's knowledge would have a chance, and that he need only attempt such subjects as he knew well. I found the task of looking over the thirty sets of answers to these questions and estimating their value to be a somewhat serious one, arising from the circumstance that nearly every candidate tried to answer every question whether he knew its subject or not.

My object in setting a paper with a large number of questions was, thus, to some extent, defeated. The answers were, on the whole, very creditable. The three students who gained the greatest number of marks were Faiz Mahomed Ali, Murdunment, and Ruheem-ood-deen. These obtained respectively 9, 8, and 56 per cent. of full marks. Three others followed in, behind these, obtaining 55, 54, and 54 marks.

divided
 would here beg to suggest that a small sum—say
 —be awarded to Meer Ultraf Ali, for his very creditable
 exertions in teaching the use of the instruments to the
 executive.

Observations at Roorkee during the Solar Eclipse on the 18th August.—Readings of the barometer, standard, sun's rays, and dry and wet bulb thermometers, were made every five minutes from 7-30 till 10-30 A.M. The extent of the eclipse, as seen in Roorkee, was nearly five-eighths. It began at 12 minutes past 8 o'clock; but the time when it was over was not noted. The only instruments on which the obscuration of the sun had any apparent effect were the standard, and sun's rays, thermometers. The last of these rose nine degrees from 7-30 till the first appearance of the eclipse, that is, in little over half an hour; but after the observations had begun, it did not rise one degree for one hour and a half, from 8-15 till 9-15. The standard thermometer in shade was similarly affected, only it began very slowly to rise a few minutes before the sun's rays thermometer. The difference in time, however, was very slight; but still it would have been expected that the thermometer exposed to the sun would have been the first to show an increase of heat.

Hourly Observations.—Another and more extended series of these were made at the spring and autumn equinox and the winter and summer solstice. On each of these occasions the barometer, &c., were read for 48 successive hours. The results are given in the table below, in which also, for the sake of comparison, are printed the results contained in last year's report. These readings are all reduced to 32°. The asterisks denote the maximum and minimum readings of the 24 hours.

Hour.	21st March, 1867.	20th March, 1868.	21st March, 1868.	21st June, 1867.	20th June, 1868.	21st June, 1868.	21st Sept., 1866.	23rd Sept., 1867.	22nd Sept., 1868.	23rd Sept., 1868.	20th Dec., 1866.	22nd Dec., 1867.	21st Dec., 1868.	22nd Dec., 1868.	Hour.
1	28-872	28-634	29-001	28-600	28-547	28-624	28-855	28-831	28-767	28-811	29-307	29-141	29-141	29-119	1
2	811*	983	28-999	591	547	594	851	827	755	782	293*	138	140	111	2
3	858	913	974	575	545	592	839	816*	735	755	294*	127	137	093	3
4	855	894*	959	572	553	590	835	818*	727*	736	294*	125*	133	082	4
5	854	902	956*	597	604	600	821*	816*	732	727	297	126	132	060*	5
6	872	931	987	610	608	598	837	836	762	728	308	128	128*	077	6
7	892	968	988	629	635	633	855	851	778	723*	332	150	158	072	7
8	950	29-013	29-024	627	542	636	861	873	788	734	357	178	184	077	8
9	973	030	050	634	640	652	870	884	815	736	398*	201	198	094	9
10	957	032	071*	659	645	656	903	893	823	740	335	225*	206*	127*	10
11	962*	032	070	646	657*	660	868	891	831*	740*	384	213	200	115	11
12	913	020	034	652	651	653	863	892	829	736	350	196	186	106	12
13	882	28-972	064	628	611	634	826	864	830	737	296	118	141	054	13
14	862	953	031	606	608	606	808	834	828	733	277	106	118	044	14
15	836	946*	054	558	558	558	798	828	831	727*	272	091*	108*	038*	15
16	827*	946*	022	578	593	573	791	814*	826	736	269	094	112	038*	16
17	833	962	024	569	568	577	792*	834	842	753	263*	111	118	042	17
18	842	981	019*	568	568	591	790*	838	844	780	264*	119	123	048	18
19	872	988	019	589	628	584	818	856*	841	803	282	137	133	079	19
20	879	29-006	081	617	632	636	827	855	847	816*	292	149	144	082	20
21	886*	008	129	626	628	628	826	855	841	814*	310*	164	150	081	21
22	883	035	124	590	656*	646*	841*	850	855*	808	303	172	147	084*	22
23	880	038*	233*	639*	648	569	839	850	843	809	298	154	131	084*	23
24	880	038*	233*	639*	648	569	839	850	843	809	298	154	131	084*	24

1 a.m. 10 p.m.

Experiments on Evaporation.—I regret to state that only one attempt was made to prosecute these in the Ganges Canal. I found that the apparatus I had contrived for the experiments was insufficient to withstand the strain and vibration to which it was subjected in the strong current of the canal. Another apparatus was speedily got ready; but the hot winds of last year, especially near the time of the expected rains, were very uncertain, and on this account there was hardly a favorable opportunity for prosecuting the experiments.

Monthly Reports.—From January to August these reports were accompanied with abstracts of observations such as had appeared in the previous year; and, in addition, they were also accompanied with charts showing the course of the air-pressure and temperature. The publication of the latter, however, was attended with a little delay, and a great increase to the expense. Chiefly on the latter account, I proposed to Government to abandon the publication of these charts with the monthly reports, and to reproduce them in the annual report only. At the same time, I also proposed to give up the printing of the monthly abstracts and to publish only a brief report, embracing such numerical data as were of great general interest. My reasons for making this proposition were simply that these charts and abstracts are only records, and as such it would serve every purpose to publish them in the annual report only. As Government consented to my proposal, I have, since September last, published only a short report without charts and abstracts. I would have it, however, clearly understood that the charts, &c., are regularly prepared every month both for use in the drawing up of the monthly reports and also for reproduction in the annual one.

Inspection of Observatories.—I inspected the observatories at Chukrata, Meerut, Bareilly, Futtehghurh, Agra, and Jhansie—the first in September, and the remainder in December last. In visiting these places, I took with me for contribution

certain instruments which were required. Thus, barometers were taken to Chukrata, Bareilly, and Futtehgurh; anemometers and sun's rays thermometers, &c., to Bareilly, Agra, and Jhansie. During these visits I was also able to do a great deal in consultation with the officers in charge as to the better arrangement of the instruments, so as to attain greater uniformity of exposure, and also to examine the mode of working of the Native Assistant.

Instruments.—A large case of instruments from Casella, of London, arrived in the month of August. These instruments were those which I had been allowed to order direct from the maker. They arrived in Roorkee in very good order, and were all extremely well-made and finished instruments. I have already mentioned how I have distributed a part of these. Several others I have also sent to out-stations by post where it was possible to do so.

I regret having to report that most of the instruments supplied to me from the Medical Store Department have not turned out satisfactorily. No fewer than four of the six barometers have been rendered, at least temporarily, useless by the escape of a large part of the mercury from the cistern. This arose from an insufficiency of the packing where the cistern is joined to the tube. To replace three of these instruments at once, so as to make as short a break as possible in the work of observation, I have had recourse to the Instrument Depôt of the Thomason College in Roorkee. The solar radiation thermometers also are not as they should have been. The range is too short for use in India; on this account, one at the Bareilly observatory burst altogether. The outer glass casing, which should enclose a vacuum only, seems in them all to be full of watery vapour.

rainy day,
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hailstones &

RETROSPECT OF THE WEATHER AND REMARKS
ON THE CLIMATE OF THE NORTH-WESTERN
PROVINCES IN 1868.THE EARLY COOL SEASON, INCLUDING JANUARY, FEBRUARY,
AND MARCH.

JANUARY.

<i>Grand Mean Temperature.</i>				<i>Day Means.</i>		<i>Night Means.</i>	
		<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>
1868,	...	55°	65°	61°	74°	42°	53°
1867,	...	57°	67°	56°	76°	46°	60°

The above shows the corresponding temperatures for this month in 1867 and 1868. It will be seen that the range of temperature during the whole 24-hour day was 2° cooler in January, 1868, than in 1867. The day means show a longer range, those of 1867 going 5° below and 2° above those of 1868; the night means show a difference of about 5° on the colder side in favour of 1868. The nights of January this year were a good deal cooler than those of last, while the days were about the same. As a consequence of this, the monthly range in 1868 was greater (19° to 21°) than in 1867, when it was from 10° to 16°. Although the above give the extremes of the several mean temperatures, it may be well to state here, also, that the grand means were mostly from 56° to 61°, the day means mostly from 62° to 69°, and the night means from 44° to 48°. Compared with the preceding month, December, the whole-day means were 2° or 3° lower in January; the day means about the same; the greatest difference was in the night means, which in January nowhere went higher than 53°, as against 58° in December.

The general character of the weather in January follows:—The first three days were clear; on the 4th and 5th, and in nine of the stations,

the barometer chart that this storm was accompanied with diminished atmospheric pressure. The rain-fall in this month in Meerut, Roorkee, and Deyrah was greatly in excess of that of the corresponding month of last year. The prevalence of cloudy weather was also greater this year than last.

MARCH.

<i>Grand Mean Temperature.</i>		<i>Day Means.</i>		<i>Night Means.</i>	
From	To	From	To	From	To
1868, ...	67° 79°	81°	92°	55°	75°
1867, ...	72° 80°	78°	89°	63°	74°

These numbers show that the nights in March of this year were a good deal cooler than those of last, while the days were slightly warmer, giving a gain on the cooler side of 2 or 3 degrees in the mean day temperatures in favour of this year. Compared with the preceding month, the whole-day means show a rise of from 7° to 9°; the day means a rise of about 15°; and the night means a rise of from 5° to 13°.

Dull, cloudy weather in the latter half of March was common nearly all over the North-Western Provinces. The same kind of weather characterized the former half, also, in all the stations in the more westerly provinces; the 8th and 9th were especially dull, and often rainy, days. The 26th or 27th were also days on which slight rain fell, or on which dust-storms with slight rain occurred. Trifling rain-falls, not measurable in the gauge, were of very frequent occurrence in March. There was a pretty steady rise in the mean temperature from the beginning to the end of the month. The mornings and evenings were everywhere spoken of as being very pleasant.

The general character of the weather in the early cool season of 1868 was much like that of 1867, but, if anything, a little colder. In 1868, there were fewer bright, sunny days, and more dull, cloudy ones than in 1867. The amount of

rain also was larger in the former year, especially in the western sections of the North-Western Provinces, but the cold weather of 1867 was by no means a dry period both then and in 1868; the frequent wet days had been remarked, and apprehensions were thrown out that the proper rain might be delayed or deficient in quantity. This was not the case in 1867, but in 1868 it did turn out to be true. A considerable rise in temperature takes place during this season, more in March than the other two months put together; still the heat is never so high as to be oppressive. The cold bracing mornings of January, and the early part of February, change into others still cool and agreeable in the later part of February and March. Indeed, all through this season, the climate of Upper India is a very fine one. The health reports are generally good, and they were especially so in 1868.

THE HOT WEATHER, INCLUDING THE MONTHS OF APRIL AND MAY.

The hot weather of 1868 may be said to have included the rainy period also, as there was but little distinction between the usual dry, hot weather of April and May and the rains. In the former months there was frequently a cloudy sky, easterly wind, and rain, and but little of the hot westerly winds which are more characteristic of this season; while, on the other hand, in the rainy season, the rains were deficient in quantity, and were frequently interrupted by long breaks, in which the wind was from the west and became hot and dry. Still, for convenience of description, it will be better to consider the two periods separately.

APRIL.

<i>Grand Mean Temperature.</i>				<i>Day Means.</i>		<i>Night Means.</i>	
		<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>
1868,	...	80°	88°	85°	102°	65°	80°
1867,	...	79°	90°	87°	105°	66°	83°

the barometer chart that this storm was accompanied with diminished atmospheric pressure. The rain-fall in this month in Meerut, Roorkee, and Deyrah was greatly in excess of that of the corresponding month of last year. The prevalence of cloudy weather was also greater this year than last.

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APRIL.

<i>Grand Mean Temperature.</i>				<i>Day Means.</i>		<i>Night Means.</i>	
	From	To		From	To	From	To
1868, ...	80°	88°		85°	102°	65°	80°
1867, ...	79°	90°		87°	105°	66°	83°

the 10th became less; but it increased, as already noticed, from the 17th to the 20th, and often also in the last three days of the month. In the first fifteen days the wind was east, north-east, or south-east, but after that was west or south-west.

To convey some idea of the sparseness of the rain in this August as compared with last, it may be stated that the average rain-fall for all the stations sending registers to Roorkee, was in August, 1867, 14.36, and in 1868 only 4.25 inches.

SEPTEMBER.

<i>Grand Mean Temperature.</i>		<i>Day Means.</i>		<i>Night Means.</i>	
		From	To	From	To
1868,	...	*84°	88°	†90°	96°
1867,	...	80°	86°	84°	97°
				74°	83°

The mean temperatures of September exceeded those of the same month last year by a few degrees: this must again be attributed to the more meagre rain-falls, and the comparatively clearer sky. Compared with August, the heat of September was milder by three or four degrees.

The barometer stood about the mean height for the month on the 1st and 2nd, but fell almost to its lowest on the 3rd, 4th, and 5th,—rising rapidly on the 6th, 7th, 8th, and 9th to above its mean. On the 10th it began slowly to fall, and kept slightly oscillating a little below its mean from the 12th to the 24th; then it rose quickly, and kept high to the end of the month. The mean height of the barometer was about one-tenth higher than in August. This fact points to the gradual lessening power of the sun on our atmosphere as it retreats towards the southern tropic; and it may be stated that the air-pressure increased rapidly in the last four days of August, as it did in the last five days of September.

* Mostly 86° † Mostly 92° to 96° ‡ Mostly 75° to 79°.

The temperature curves did not show the similarity of feature that the barometer curves did. Dehra and Roorkee were much alike—the mean temperature not falling greatly at the end of the month below what it was at the beginning. In Futtehghurh, Agra, Lucknow, and Jhansie, the curves bore a strong resemblance, especially in the sudden fall that took place on the 13th, followed by as sudden a rise on the 18th. In Goruckpore and Benares this fall of temperature also occurred, but not to such an extent, and the subsequent rise took place two and three days sooner. In all the stations, the 15th and 16th were days of low mean temperature; and it may be noted that this lowering of the heat either followed or accompanied a heavy shower of rain which occurred on the 13th, 14th, 15th, or 16th, and which was the largest rain-fall of the month.

It may be remarked that the period from the 13th to the 24th was that in which the moisture in the atmosphere was greatest; by far the greater amount of rain fell in it, the sky was most overcast with clouds and the humidity figures ran their highest. The last week of the month was, in most stations, cloudless, and quite free from rain: it has been shown that it was a time of increasing pressure of the air.

On the 14th there occurred at Allahabad a more than commonly violent storm which was preceded by nearly ten hours of continuous rain. The rain began at 2 A.M., and somewhat suddenly stopped at noon; and at 12-30 the storm broke over a somewhat circumscribed part of the station, and raged furiously for about six minutes, committing a great deal of damage on trees and houses, among which latter were the Government Press buildings. After the violence of the storm had passed, the rain still continued till 11 P.M.

It has been already mentioned that the rain-fall was defective compared with the former September.—The average of the registering stations was 7.78 inches in September, 1867,

while the same average this September gives only 4.20. The places where the amount of rain was greatest were the three stations in Oudh, especially Fyzabad, where nearly 14 inches were registered. This is the largest amount of rain recorded in any of the registers. The group of south-eastern stations—Chunar, Benares, Nagode, and Nowgong—had also moderately high rain-falls. It is curious that both Goruckpore and Azimgurh had small rain-falls, although to the south and west of these there were areas of great precipitation.

OCTOBER.

<i>Grand Mean Temperature.</i>				<i>Day Means.</i>		<i>Night Means.</i>	
	From	To		From	To	From	To
1868, ...	*77°	85°		†53°	90°	‡60°	75°
1867, ...	75°	83°		81°	94°	60°	71°

The mean temperatures of October exceeded those of the same month in 1867 by only a degree or two. The comparative dryness of the preceding months had conferred on them a temperature higher than that of last year, but this circumstance told but little on October, as might have been expected, as it is normally a dry month. Compared with September, the grand mean temperature fell from 3 to 7 degrees; and, while the night means fell on an average 14 degrees, the day means hardly fell at all. The same circumstance was noticed in 1867, the night means falling far more in proportion than those of the day: the effect of this is to give a high range of temperature in October, amounting this year to nearly 25 degrees.

The barometer at the end of September had stood high in relation to the rest of the month. It stood at the same height, or very slightly lower, on the 1st of October; after which it still fell, but very little, to the 6th or 7th. From thence to the 10th it rose, and kept slightly above the mean till the 16th or 17th, when the air-pressure increased more

* Mostly 80° † Mostly 93° ‡ Mostly 66° to 70°.

markedly; but towards the 20th or 21st, and on to the 22nd and 23rd, it again decreased to slightly below its mean height for the month; after which it rose again, reaching on the 27th and 28th as high (in some cases higher) a point as had been reached on the 17th, 18th, and 19th.

The mean height of the barometer was, on the average of all the stations very nearly two-tenths higher than in September. The range of the air-pressure was very great in Goruckpore, giving the somewhat unusual amount of seven-tenths of an inch. On the other hand, it was contracted in Nynsee Tal to nearly two-tenths, five-hundredths. The same was the case in the other hill station, Chukrata, at least during the latter two-thirds of the month, during which only observations of the barometer were taken.

The course of temperatures show on the whole a considerable uniformity, the heat gradually declining towards the end of the month. From what has been already said, this is much more marked in the temperatures of the night hours. The steady fall of the temperature from the beginning to the end of the month was also noticed in October of last year.

During the first week of October there was a slight prevalence of cloudy weather, amounting, however, only to a few scattered clouds. After the first week, the clouds cleared away, but again partially returned at the end of the third week—19th or 20th. The 22nd was notably a cloudy day in most of the stations. On account of the low night temperatures which prevailed, the relative humidity of the atmosphere was usually high during the night, and increased towards an hour or so before sunrise; but, as the day advanced, the humidity decreased rapidly, giving a very dry air from 10 till 4 o'clock. This course of the air's humidity was particularly well marked in Bareilly, Goruckpore, and Roorkee, and to a less degree in all the other stations.

In only two stations did rain fall in measurable amount—Dehra and Nagode—and that only on one day, the 6th in

Debra, and 7th in Nagode. In other stations a few drops only fell on either the 6th, 7th, or 8th, and also in many places on the 22nd. Among these latter were Chukrata, Roorkee, Meerut, Agra, and Ajmere.

There was a great prevalence of westerly wind, especially in the day hours. The wind was seldom strong, and the storms that occurred were of the gentlest kind.

GENERAL RETROSPECT OF THE RAINY SEASON.

The rain-fall of the rainy season of 1868 was deficient all over the Upper, while it was in excess in the Lower Provinces of the Bengal Presidency. In Calcutta there has not been a rain-fall so high within the last thirteen years. The rain was in excess in parts of Western India, but this does not seem to have extended further north than the 22° or 23° of latitude. In the Central Provinces, Rajpootana, the Punjab, the North-West Provinces, and Oudh, the rain-fall was deficient. In the last two no rain-fall has come so far short since 1864, and in that year it was only in a few stations that the amount of rain was so deficient as it was in 1868.

The rains commenced in Bengal the 2nd week of May. From the 7th to the 14th, heavy rain had fallen in Calcutta, Chittagong, Cuttack, and Darjeeling; but, except in the latter place, the rain did not reach any station but those near the coast until the 3rd week—the 14th to the 21st of May. By that time the rain had extended westward to Hazareebagh, and up the Gangetic valley to Patna and Benares, and even as far as Agra, Meerut, and Roorkee, taking in also Lucknow, Fyzabad, and Bareilly. Rain fell also at Ajmere, but it was not brought up from the Bay of Bengal, as a south-west wind was blowing at the time. It may also be noted that during this period a south-east wind and a cloudy sky had prevailed all over the North-Western Provinces. The same wind and weather were also observed from the 22nd on to the end of May, and trifling rain-falls took place in several stations.

Early in June the south-east wind still blew, and the signs of the setting-in of the rains were more decided: great cumuli and nimbi clouds were seen, and rain fell on the 4th, 5th, 6th, and 7th; from the latter day till the 12th was commonly a fair period, but still a cloudy sky was observed. From the 12th to the 19th was a period of frequent and heavy rain; but by the 20th the rain had ceased, the clouds had disappeared, and the wind had changed to the west and had become hot. In Bengal, the weather in June was very like that in the North-Western Provinces, especially in the higher up-stations, like Monghyr and Patna. From the 8th to the 14th, the rain-fall in Calcutta and all the coast stations was very large; in Calcutta it had reached 21·7 inches in that one week. Up to the 19th, the rain continued with little abatement, but a change took place on that day. In all but the coast stations, the wind veered from south or south-east to a west or north-west, and fair weather ensued; in the coast stations, the rain was much diminished, and there were longer intervals between the showers.

In July, both in Bengal and the North-Western Provinces, the rain was chiefly confined to the period from the 10th to the end of the month. Up to the 10th, the same dry, hot weather, with westerly winds, which had been observed during the latter third of June, continued; but on the 10th, 11th, or 12th, the wind changed again to the east or south-east, and the rain again set in and fell at intervals up to the end of the month.

In August, the distribution of the rain between Bengal and the North-Western Provinces was more unequal, and also very unequal among the different stations of the latter. Rain fell heavily in a great many places on the 3rd, 4th, or 5th—in Agra as late as the 6th; but after this, excepting in the hill stations and Dehra, there was not, all over the North-Western Provinces and Oudh, a shower that yielded more than three-tenths of an inch in the gauge. This was not the

case in Bengal; there rain fell heavily in the second and third weeks, at least up to the 18th day. This longer duration of the rain extended westward to Huzareebagh, and up the Ganges as far as Monghyr; it slackened, however, at Patna, and did not reach Benares at all, although it stretched northwards to Goruckpore. The unequal rain-fall of the various stations in the North-Western Provinces was somewhat striking. It has already been mentioned that the rain was chiefly confined to the first five days of August in all the three Oudh Stations—Seetapore, Lucknow, and Fyzabad; but the rain which there fell was plentiful. It was the same in Futteh-gurh and Benares. In Allahabad, however, it did not reach one inch. South of the Jumna, in Nagode and Jhansie, the rain was very deficient. In Rohilkund, judging at least by Bareilly, the rain was greatly diminished. Meerut was all but rainless, while Roorkee had nearly an inch, possibly arising from its nearness to the hills. But Agra—a station not remarkable for its abundant rain—had a shower yielding one inch and a-quarter on the 6th.

In September, the rains were continued in frequent moderate showers at Calcutta and the coast stations, with, however, longer intervals in the first seven, than in the remaining twenty-three days. In the North-Western Provinces, the rain of the second week, mainly that of the 13th day, was the most important; but in the third week also, especially on the 15th day, there were some heavy rain-falls. The total rain-fall for September diminished pretty regularly, as the station was situated more to the westward. Benares had a large amount of rain, and so had Fyzabad and Lucknow; but, to the westward of these, as at Futtehgurh, the amount of rain was much less: it was still less at Seetapore and Bareilly. It is singular and most unusual that the latter—a station on the plains—had more abundant rain than the neighbouring hill station Nynee Tal. Meerut was, again, almost rainless. In Roorkee, it all fell in one day—the 13th. The

diminution of the rain by increasing westerly position may also be observed in Huzareebâgh, Nagode, Jhansie, and Ajmere.

In October, the rains came to an end ; indeed, it may be said that in the North-Western Provinces they were over by the last week of September, but in Bengal they extended into the first week of October. However, it was only in places near the coast where the rain-fall was anything more than trifling. The only places in the North-Western Provinces where any rain at all fell, were Dehra and Nagode, and in these only to the extent of half-a-tenth of an inch. But, although there was little or no precipitation of rain in the North-Western Provinces, nor in Bengal after the first week, yet the influence of the monsoon, in raising the humidity of the atmosphere, did not cease till near the end of October ; for there was a continual re-appearance of clouds as far on as the 22nd. This was a notably cloudy day, and on it a slight sprinkling of rain fell in a few places.

In the present imperfect state of meteorological information, it would be needless to speculate as to the cause of the contrast in the rain-falls of Lower Bengal and the North-Western Provinces. I have made an investigation into the barometric and wind registers, with the object of trying to find a cause for the difference. I have chosen for this purpose certain periods when the contrast of the weather was very marked. I subjoin four of the examples thus worked out. They are not, however, instructive ; the differences in the barometer are not so great as might have been expected, nor are they according to theory. It must, however, be added that the errors of the barometer in use in the two North-West Stations are not known ; and, in an instrument like the barometer—which in India has such a limited range—any error, however slight, tells heavily in an enquiry like this. I may also add that in the following I have added the station of

Chittagong; for, although it is not strictly in Bengal, yet it has much the same weather conditions as Calcutta.

Mean height of barometer on the seven days from the 11th to the 17th of August inclusive:—

				<i>Corrected for temperature and sea level.</i>
Roorkee,	...	...	...	29.414
Benares,	...	...	...	29.535
Calcutta,	...	...	...	29.504
Chittagong,	...	...	...	29.417

During this period the wind at Roorkee was mostly west; once or twice south-east, or it was calm altogether; at Benares, it was west; at Calcutta, west, west-by-north, and west-by-south; at Chittagong, south, south-east, and south-west. At Roorkee and Benares there were few or no clouds, and no rain; at Calcutta and Chittagong rain fell in torrents—19 inches in Calcutta, and nearly 15 in Chittagong—and the sky was overcast at both.

Mean height of the barometer at 16 hours of the 12th, and 10 hours of the 13th August:—

				<i>Corrected for temperature and sea level.</i>
Roorkee,	...	...	...	29.467
Benares,	...	...	...	29.561
Calcutta,	...	...	...	29.456
Chittagong,	...	...	...	29.408

During this period of 18 hours, there was no wind at Roorkee; it was west at Benares, west-by-north and west at Calcutta; south at Chittagong. At Roorkee and Benares there was no rain, and but few clouds; at Calcutta 9.39 inches fell, and the sky was overcast; at Chittagong, 6.14 inches fell, and the sky was also overcast.

Mean height of barometer from 22nd to 30th of September :—

				<i>Corrected for temperature and sea level.</i>
Roorkee,	...	...	...	29·756
Benares,	...	...	...	29·787
Calcutta,	...	...	...	29·775
Chittagong,	...	...	...	29·726

In this period at Roorkee there were calms, south-east, north-east, and south-west winds, the sky was nearly cloudless, and no rain fell; at Benares, the wind was east, north-east, and north-west; cumuli clouds were abundant in the sky, and six-tenths of an inch of rain fell; at Calcutta, the wind south-by-east, the sky almost overcast, and 5·76 inches of rain fell; at Chittagong, a south-west or south-south-west wind blew, the sky was only partially cloudy, and eighty-eight-hundredths of rain fell (0·88).

Mean height of barometer at 16 hours of the 4th, and 10 hours of the 5th of September :—

				<i>Corrected for temperature and sea level.</i>
Roorkee,	...	...	...	29·541
Benares,	...	...	...	29·649
Calcutta,	...	...	...	29·658
Chittagong,	...	...	...	29·649

In this period of 18 hours, no rain fell at either Roorkee or Benares—there were no clouds, or only light cirri, and the wind was due west; at Calcutta, the wind was south-south-west, the sky overcast, and 3·10 inches of rain fell; at Chittagong, the wind was south-west on 4th and south-east on the 5th, the sky was overcast and 4·90 inches of rain fell.

THE LATER COOL SEASON.
NOVEMBER.

<i>Grand Mean Temperature.</i>		<i>Day Means.</i>		<i>Night Means.</i>	
	From To	From To		From To	
1868,	... 63° 76°*	87° 90°†		47° 61°‡	
1867,	... 66° 80°§	73° 85°||		49° 67°¶	

The day means in 1868 very decidedly exceeded those of 1867; and, on the other hand, the night means of 1867 exceeded those of 1868, but less markedly. The effect of this is, first, to give a series of grand means nearly the same; and, second, to give an increased range of temperature in 1868, as compared with 1867: thus, 21 to 29 degrees were about the limits in 1867, while 26 to 36 degrees were observed in 1868. Compared with October, there was a very notable fall in the night temperatures, amounting to 14 degrees; there was also a fall in the day temperatures, but only about 8 degrees. The fall on the grand mean was about 10 degrees.

The air-pressure stood, on an average, very nearly one-tenth higher than in October. The exceptions to this were Goruckpore, where the increase was two-tenths, and in the two hill stations, Chukrata and Nynce Tal, where hardly any increase took place. These hill stations may be also contrasted with Goruckpore in another respect, as they present a very limited range of barometer readings; while the latter gives one of the largest ranges for the month, namely, four-tenths: it is equalled, however, in this by Roorkhee, Agra, and Benares. The course of the air-pressure was very uniform over all the stations. Beginning a little above its monthly mean, it slowly fell to its lowest on the 9th and 10th; then as slowly rose to nearly its highest on the 16th and 17th; after that it slightly fell to the 22nd, but on the 23rd rising again to its very highest, which occurred generally from the 26th to the 29th.

*Mostly 73° and 74°

§Mostly 69° to 75°

†Mostly 87° to 88°

||Mostly under 80°

‡Mostly 55° to 58°

¶Mostly 61° and 62°.

The temperature became less and less in nearly all the stations as the month advanced; in a few, however, the heat was high in the first two weeks, falling more in the last two. This fall was generally more steady and more marked with the night temperatures than with the day ones.

There is but little to remark on the weather of November. There was no rain, and no storms; even a high wind is recorded in only one place—Nynsee Tal—as being prevalent. The sky was usually cloudless, excepting in the more eastern stations—Chunar, Benares, Nagode, and Nowgong—where clouds were seen during the last seven days. The humidity of the atmosphere was, in the day hours at least, very low, never reaching half saturation, and often falling lower than 20 per cent. In Bareilly and Roorkee, the humidity, especially in the former, often approached saturation at four o'clock in the morning.

Nearly all the observers remarked that their stations were in a very healthy state.

DECEMBER.

<i>Grand Mean Temperature.</i>				<i>Day Means.</i>		<i>Night Means.</i>	
	From	To		From	To	From	To
1868, ...	58°	66°*		76°	79°†	44°	57°‡
1867, ...	57°	66°§		63°	76°||	44°	58°¶

The grand and the night mean temperatures for December, 1868, were very nearly the same as for the same month in 1867. In the day means, however, a difference may be observed, those of 1868 being the higher of the two years. This is markedly the case with the stations giving the lower means, which in 1867 were full 10 to 13 degrees below those of 1868. The result of these higher day means is to give a wider daily range of temperature, which was seldom below 30

*Mostly 63° to 65°	†Mostly 75° to 78°	‡Mostly 46° to 52°
§Mostly 62° to 64°	||Mostly 66° to 70°	¶Mostly 50 to 52.

degrees in 1868, whereas in 1867 it did not go above 27 degrees. Compared with November, there was a fall of temperature in December of 10 degrees in the day and 3 in those of the night. These, of course, both told on the grand means, which were from 10 to 16 degrees lower than those of November. It may be noticed here that the night means of October and November fell more in proportion than the day ones, while in December the converse was the case.

At the end of November, the barometer stood between one or two-tenths above its monthly mean height. In the beginning of December it read nearly the same; but, inasmuch as the mean air-pressure of December was from four to eight-hundredths higher than in November, the barometer on the 1st and 2nd days of December read just at its mean monthly height: it rose slightly to the 5th, and fell again to the 11th, rising again to the 16th, 17th, and 18th, and from the latter date to the end of the month it oscillated rather below its monthly mean height.

The mean temperature did not fall relatively to such an extent as was noticed in the two previous months. The fall was more marked, however, in the day maxima. The night minima showed a rising curve up till the 16th or 17th, and then a sudden and marked fall, reaching its lowest on the 21st, 22nd, 23rd, or 24th, then as suddenly rising to the 26th and 27th; but falling again to the 31st.

December opened with clear, dry weather. About the 12th, 13th, 14th, or 15th, clouds began to gather, and reached their maximum amount on the 16th and 17th, on either of which rain fell in nine stations; in five it was in measurable amount. The rain was very heavy south of the Jumna in Gwalior and Jhansie. The clouds disappeared on the 19th, but returned again on the 23rd or 24th, and again overcast the sky on the 26th and 27th. On the latter day rain fell in six stations, in four of which the amount could be gauged.

After the 27th, the sky again cleared, and remained so till the end. It may be here noticed that the cloudy period* was accompanied with a high and even rising barometer, and a high and rising night temperature. At the clearing away of the clouds, the barometer fell gently, and the minimum thermometer suddenly. When the clouds re-appeared on the 23rd and 24th, the barometer did not again rise, but the night temperature did. This latter effect may have been due to the small amount of radiation which the cloudy sky would permit. Another feature of the cloudy periods was a change of wind from west, south-west, or north-west, to east, south-east, or north-east. The rain which fell, excepting in Gwalior, was very small in amount. There was no prevalence of disease.

The later cool season of 1868 was a little warmer than that of 1867, especially during the day hours. The temperature falls steadily throughout this season, relatively more in the night temperature in November, and in the day ones in December. Although the winter solstice occurs in the latter month, it is not the coldest in the year, as the temperature is still getting lower in the early part of January, although the sun is really further north then than it is at the end of December. The reason of this is the same as that by which the highest temperatures in the day are not reached at 12 o'clock, when the sun is most vertical, but from an hour and a-half to two hours afterwards. In fact, any result which is due to a cumulative cause is always postponed beyond the time when that cause is at its greatest intensity.

Although the beginning of the cold weather is rendered a little unsafe to the European in India, on account of the high range of temperature—the hot days and the very cold nights apparently predisposing to fever—yet it is a very pleasant season in India. There are many little circumstances which combine to make it so, such as the cessation of *punkahs*, the resuming warm clothing, the increase to society in which all the stations on the plains partake; but the chief of them is the feeling of

pleasure that the hot season is at an end, and that there will be a good space of enjoyable weather before the autumn begins.

From R. SIMSON, ESQ., *Secy. to Govt.*, to M. THOMSON, ESQ.,
M. D., F. R. S. E., *Reporter on N.-W. P.*
(No. 1358A.)—*Dated Nynce Tal. 27th August, 1869.*

SIR,—I am directed to acknowledge the receipt, on the 16th instant, of your letter No. 155, dated the 31st May last, being the Report on Meteorological Observations for the year 1868, and in reply to communicate the following observations:—

2. A special report on the subject of the proposal to remove the Observatory from Nynce Tal to the neighbouring new Hill-station, Raneekhet, may be submitted when the time for effecting the change is nearer. The arrangements for the management of the Observatory should also be detailed.

3. The Lieutenant-Governor doubts the advisability of discontinuing the register at Moradabad; but His Honor is prepared to receive a further report containing your reasons for this recommendation.

4. Your proposal to award Rs. 50 to Meer Ultraf Ali, a teacher in the Agra Medical School, for his very creditable exertions in teaching the use of the meteorological instruments to the students, is approved.

5. I am to request that you will state, for the information of Government, when and from what place the instruments were procured which are described as having turned out so unsatisfactorily.

Art II.

BOOKS SUBMITTED TO GOVERNMENT BY NATIVE WRITERS.

WORKS BY MAHOMED NUZEER AHMUD, SETTLEMENT OFFICER, JALOUN.

From M. KEMPSON, Esq., M.A., Director of Public Instruction, to R. SIMSON, Esq., Secy. to Government, N.-W. P. (Docket No. 925).—Dated Nynnee Tal, the 22nd July, 1869.

I HAVE received the following MSS. with much satisfaction, as the work of an able Government servant and a sound scholar. He was one of three Native gentlemen selected by the late Sir G. Edmondstone to prepare an Oordoo version of the Penal Code some years ago, and received a *khillut* for his services, and has since held important appointments in the Revenue Department. The work which I have placed at the head of the list is the most interesting and specially adapted of its kind which has appeared, and I regard it as to style and diction as a good model of Vernacular composition. In this respect it ranks with the recently published correspondence of the late Mirza Nousha (Ghalib) of Delhi, and certainly rivals the Oordoo version of the *Alf Laila*, and of the *Bostan Khial* by Badr-ud-deen Khan, also of Delhi, though the two latter are of course greatly more meritorious in the way of sustained effort and literary industry. The production under notice is a readable every-day book, intelligible to common folk, and pure and practical in tone. There is no pandering to the passions or appeal to the marvellous, which appear to be the ordinary passports to popularity among Oriental writers ; and I hope the author may find many imitators.

The five remaining books are simply school-books, but each is meritorious in its way, and shows the author to be a man who desires to place his experience and scholarship at the service of the community. He must have little leisure for literary labours, but what he has, he has undoubtedly well

employed. Looking to the spirit as well as to the excellent quality of his performances, I recommend the full reward of Rs. 1,000. I have no doubt he will be willing to place his MSS. at the disposal of Government for edition, correction where necessary, and publication.

I.—*Miret-ul-Arsh (The Bride's Mirror).*—Orie MS.,
261 pp. *prose.*

This work has been composed expressly for the benefit of females. It is a tale of domestic life in a respectable Mahomedan family. Two sisters of entirely different character marry into the same family; and the father-in-law's household thus supplies the chief matter for incident. The elder bride, Akbari, is described as badly brought up and spoiled, and exceedingly ill-tempered and quarrelsome. She is engaged in perpetual strife with the women of her husband's family, and becomes feared and detested. At last, in a fit of anger, she leaves the house and returns to her mother. The females of both families consult over the emergency, and she is persuaded to return to her husband on condition of his finding a separate home for her away from his father's family. Her after behaviour, folly, and general ignorance of domestic management, which lead her into various troubles, are then depicted at some length.

Not long after these events, the younger sister, Asgari, marries into the family. She is a charming picture of woman as she might be, and perhaps often is, in the veiled recesses of the home-circles of our fellow-subjects. Bred in seclusion, her father's favourite, sweet-tempered, well-taught, and fully accomplished in all matters of household comfort and economy, she comes to her husband's house as a messenger of good. Distrusted at first as probably a second Akbari, she soon wins the love and confidence of all. She learns the ways of her new home, and takes an active share in the management of the household. By-and-by she detects the untrustiness of the

family housekeeper, who, relying on her supremacy in domestic matters, and long service, has enriched herself by a secret understanding with the bunyahs and banker, and has brought the family to the verge of ruin and disgrace. Finding an enemy in the new bride, she intrigues to destroy her reputation, and sows evil suspicions in the minds of the husband and mother-in-law. Happily the right prevails. The father of the family arrives on leave, and the housekeeper's misdeeds are exposed, and she is dismissed. Henceforward all goes well. The family affairs prosper under the young wife's care, and she becomes known throughout the town for her virtues and wisdom. Not the least interesting part of this description is a long letter (pp. 68-82) which the bride receives from her father, a tehseeldar, soon after her marriage. He gives her useful advice as to her conduct in her husband's home, and points out how the many trials and difficulties which the marriage system of the country involves may be best avoided.

After a while Asgari's husband, Mahomed Kamil, who is described as a student, enters Government service, and has to leave Delhi, the scene of the story. In his absence, his wife tries her hand at education. She collects girls from the neighbouring zenanas, and teaches them to read and write, &c., and the arrangements she makes, and the happiness she produces, are fully and profitably described. Her young sister-in-law, Mahmudah, who has been her close friend through all the family troubles, helps her in the school; and by-and-by they make acquaintance with the ladies of a high-born family, resident in the same quarter, into which, by Asgari's management, Mahmudah eventually marries, to the great honour and happiness of her family and friends.

The end of the tale is sad. Asgari's virtues and nobleness are vividly mirrored in the narrative, and it is a disappointment to find that her children, one after the other, die in their infancy, and that she is plunged in distress. The story conclude

with a letter from her father, who attempts to comfort her with reflections on the nature of life and death, and the uselessness of grief. This is well-conceived and expressed in a certain sense, but one closes the book with a feeling of pity for the poor mother, that the highest consolation her creed can afford her is a string of cold philosophical considerations.

The whole of this tale is told in the words of every-day life in good society, the true Oordoo of the country, and not the high-flown dialect of pedants and poets. The incidents are natural, such as are well known in every father-in-law's household. The ways of the zenana are, as it were, exposed, and for the first time a European reader is allowed some insight into the domestic realities of every-day life among the women of the country. Their language, their likes and dislikes, their fondness for their children, their importance in the family circle, their gross ignorance, their spitefulness and petty intriguing, all receive illustration, and the picture bears no signs whatever of exaggeration. The writer evidently paints from life, and leaves the tale to teach its own moral. He is a scholar of acknowledged ability, but there is no attempt at display, and the reflections he throws in from time to time are those of an earnest and right-minded man. The mothers-in-law, the aunts, and others of the family, move before the reader as persons in a drama, and conversation and dialogue, for the first time so far as I know, are designedly used by a Native author to pourtray character, instead of the usual verbose description and accumulation of epithet. The book will be read with interest by hundreds, as soon as it becomes known, and cannot but do good to the cause of female education. I shall be able to suggest to the author one or two omissions, and a few emendations.

II.—Rasm-ul-Khatt.—Oordoo MS., 50 pp.

This is an Oordoo elementary treatise on the art of writing the Persian character. It is original and scholarly, and will be of use in schools.

III.—*Nisáb-i-Khusru*, better known as *Kháliq Bari*.

This is a new edition of the ordinary Persian Primer of the country, originally composed by Amir Khu-ru of Delhi. It is formed on the principle that when a child begins to learn a language he should commit to memory a supply of useful words; and to enable him to do this with greater facility, the words are strung together in metre.

The improvements introduced by Nuzeer Ahmud are (1) the removal of words which have become obsolete; (2) additional verses are given; (3) an alphabetical vocabulary is added for the sake of practice; (4) red letters are placed under the words to indicate their origin—whether Arabic, Persian, or Hindee. All Arabic and Persian words which occur in Oordoo are also separately marked. There are 758 Arabic and Persian words, of which 250 are Persian and 508 Arabic, exclusive of Hindee and Oordoo words. This edition ought to supersede the older form, and should be printed at once.

IV.—*Muntakhib-ul-hikayat*.—Oordoo MS., 182 pp.

This is a series of selected stories for children, intended to attract their attention and improve their understandings. The author in his preface satirizes the ordinary tales as being commonly after this fashion—“*ek thi chiriya aur ek tha chira; chiriya lai chawal ka dana aur chira laya dal ka dana; donon ne milkar khichri pakai.*” His substitutes for the Gammar Gurton style are short fables and stories from Lakman and other fabulists, adapted to the comprehension of the young. The language is simple and elegant, though a few mistakes occur which are due to the copyist. The book will do very well for an easy School Reader and prize-book, and is worth publication.

V.—*Chand Pand*.—Oordoo MS., 149 pp.

This is a series of plain-spoken articles on useful subjects intended for youth. The following are the topics:—Cleanliness, food, dress, talking, good manners, society, common sense, concord, health and sickness, anger, avarice, pride—whether of

wealth or beauty, or strength—timidity, immodesty, envy, time. These subjects are followed by a short description of the chief phenomena of the globe, physical and geographical, and by an early history of mankind, according to Mahommedan traditions, from Adam to Moses. The last few pages are devoted to the inculcation of religious and moral maxims, and a brief mention of the forms of religion prevalent in India, in which I find nothing offensive or illiberal. The style is simple and elegant, and the work is worth publishing as a prize book for Mahommedan boys.

VI.—Sarf-i-saghîr.—Oordoo MS., 78 pp.

This is an introduction to Persian Grammar for beginners. The author, by way of preface, explains the reasons for the presence of this language in India, and advocates its study solely on the ground of its being necessary for an Oordoo scholar. The work is intended for students who are already fairly proficient in Oordoo, and thus harmonizes with our system, in contrast with the custom of the country, which neglects Oordoo, and begins with Persian. I am glad to find an experienced and independent advocate of the new method in a scholar of Nuzeer Ahmud's stamp and position. His treatise is worthy of publication, and may perhaps be introduced in the upper classes of Tehseeloo Schools in which Persian is taught.

From R. SIMSON, Esq., Secy. to Government, to M. KEMFSON, Esq., M.A., Director of Public Instruction, N.-W. P. (No. 1236A.)—Dated Nynnee Tal, the 20th August, 1869.

SIR,—I am directed to acknowledge the receipt of your Docket No. 925, dated the 22nd ultimo, submitting six Oordoo books written by Mahomed Nuzeer Ahmud, Settlement Deputy Collector of Jaloun, with a memorandum containing your opinion on the same.

2. In reply, I am desired to state that the Lieutenant-Governor has perused the *Mirat-ul-Arûs*, or "*The Bride's Mirror*," with the highest satisfaction.

3. The work possesses merit hitherto (so far as His Honor is aware) unknown in Oordoo literature ; and it well deserves the high encomium you have passed upon it. It is true that as a tale there are obvious imperfections in it, judged from an European point of view. The plan has not been laid out, as a whole, with much artistic design ; some of the letters, though conveying valuable advice, are hardly appropriate to the occasion ; and marks of haste appear in many parts. But the sketches are those of real life, the language is simple and artless, and the inner history of an Indian home is portrayed true to nature. The characters are preserved each in its own individuality : nor are there wanting touches of genuine feeling and tenderness. In addition to its charming simplicity, the work is full of excellent admonition, and every incident is calculated to convey a moral or social lesson. It also brings to light the vast influence exercised by the women of India, and the manner in which that influence may be crowned with the highest results when education is added to intelligence and virtue. It can hardly be conceived that any Native gentleman will rise from its perusal without a strong persuasion of the inestimable benefits to be derived from female education.

4. The book, moreover, possesses the singular virtue of being admirably adapted for the perusal of the females of India. It cannot fail to interest their imagination as well as instruct their minds. And no Native gentleman need fear to put it into the hands of his family, but with the certainty that they will be profited as well as entertained thereby. There is not a sentiment expressed throughout the work that is not pure and moral ; or a maxim or principle inculcated which (at any rate from a Moslem's point of view) is not innocent and virtuous.

5. While it is thoroughly Mahometan in its tone and spirit, the work is at the same time as thoroughly loyal in its sentiments towards the English Government. The episode in which the domestic life of our Queen and the approaching visit of Her Majesty's son are alluded to, shows that some at least of the advantages of English life and European habits can be fully appreciated by the author.

6. The great merit of Mahomed Nuzeer Ahmud consists in his having broken fresh ground in the right direction, and held out the example of useful and attractive composition in a simple and natural style—an example which the Lieutenant-Governor feels assured will soon meet with many followers. In particular, His Honor trusts that what has now been so successfully written of Mahometan domestic life may be similarly attempted in respect of other circles; and that a picture equally fresh and true may be given us of the Hindoo family and its interior life.

7. The Lieutenant-Governor has peculiar gratification in awarding to Mahomed Nuzeer Ahmud the full prize of one thousand rupees; and His Honor will add from himself, as a personal appreciation of his authorship, a time-piece bearing an appropriate inscription. His Honor hopes to be able to present these to Mahomed Nuzeer Ahmud in public, at some place convenient for that officer, perhaps at Etawah, when the Lieutenant-Governor's Camp passes through the station.

8. An edition of 2,000 copies, lithographed in the best style, may be at once ordered for the use of Government. Mahomed Nuzeer Ahmud may also take any steps he deems proper for securing the copyright, and for the publication of the work on his own account. It will certainly become a popular book, notwithstanding that the plainness and simplicity of the style may at first render it bald and strange to Oriental readers. Nuzeer Ahmud will no doubt be thankful to receive and act upon your suggestions for the correction of some of the defects which you have pointed out.

9. The Lieutenant-Governor thinks that the work may profitably be recommended to the Board of Examiners, as a suitable text-book of examination. Incomparably superior in its contents to the vapid and often objectionable tales of common Oriental writing, it will not only benefit the student by making him familiar with the spoken language in a pure and elegant yet familiar form, but will impart much information in respect of every-day life and habits, which cannot fail of being useful to those whose duties bring them into contact with the people.

10. The other works of Mahomed Nuzeer Ahmud, though not possessing the merit of originality, will no doubt prove useful in the schools and colleges of these Provinces, and your proposals regarding them meet with the full concurrence and sanction of Government.

11. Your memorandum and this letter will be printed in the *Supplement* to the *Government Gazette*, and in the *Selections* from the Records of Government. A translation of them will also be printed in the *Supplement* to the *Oordoo Gazette*.

OORDOO TRACT BY MAHOMED HOSSEIN, DEPUTY INSPECTOR OF SCHOOLS, ROY BAREILLY.

Memorandum by M. KEMPSON, Esq., M.A., *Director of Public Instruction, N.-W. P.*, dated the 14th August, 1869.

Ainah i-Firāsāt.—Oordoo Lithographed Tract, 28 pp.

THE chief part of this tract (*viz.*, pages 11—28) is an original allegory (apparently written for a magazine), and intended to show that worldly wisdom is not the best recipe for happiness. The Deputy Inspector introduces himself as on his tour on a cheerless morning in the cold weather; and,

دیوانه بهش تا غم تو دیگران خورند
آنرا که عقل بهش غم روزگار بیش

among other matters of reflection, a Persian couplet occurs to him, to the effect

that "where ignorance is bliss, 'tis folly to be wise." He is doubtful about the truth of this, having been accustomed to regard wisdom as the great means of happiness in life; and, happening to join company with a sage on his journey,

عقل صائب he communicates to him his difficulty, and is
عقل مملش told that there are two kinds of wisdom, *viz.*,
aq̣l-i-Sāib and *aq̣l-i-Ma'ash*—that is, true wis-

dom and world wisdom, which latter only was intended by the poet. And the old man presently tells a story by way of illustration, which is the allegory above-mentioned. The following is an outline:—A certain man living under the guidance of *aq̣l-i-Sāib* was happy and contented, but *aq̣l-i-Ma'ash* obtained his ear and drove off her rival. With her come Envy, Desire, Ambition, &c., and tell him of a beautiful Princess, *Khūshī*, who dwells in the land of *Asūdagī*, and without whom life is insupportable. He sets out in search of the Princess, and after much weariness and toil reaches the open plain of *Fikr*, situated in the *jāgīr* of *Tadbīr*, younger sister of *aq̣l-i-Ma'ash*. He finds here a number of roads, each with its own gate; and, while hesitating which to choose, is accosted by *Tadbīr*, the road darogah and *jāgīrdar* of the country. She takes him round the gates and explains their circumstances. They come first to the gate of knowledge, opening on the royal road of learning, which is surrounded with books and schools; but these discourage the traveller, "who does not even know the name of *Alif*," and they pass on. The next road they come to is the road of commerce: collections of the produce of various countries, and heaps of coin are shown here; but as the traveller doesn't know what money is—"is *raste ko bhī salaām hy*,"—he says good-bye to this road also. They then visit the gate of strife, with its *tuñārs*, and guns, and other implements of war, from which he hurries away precipitately; and so for the other gates, of theft, murder, &c. At last *Tadbīr* brings him to a small wicket

opening into a dark and narrow lane, *Kúcha-i-Mihnat*—the lane of toil—and tells him that this leads equally well with the others to the land of *Asúdagí*. He chooses this path, and with a bundle of trouble on his head, and a “hill-difficulty” in front, succeeds in making his way to the abode of the Princess *Khúshi*. He enjoys her society for a day or two, when one of the attendants, *Hirs* (covetousness), plots to separate them; and, acted upon by her wiles, he takes to dishonest courses, in hopes of obtaining riches, and so to secure permanently the affections of *Khúshi*, and falls into prison. Here his old guide and patron, *aql-i Saib*, finds him. When he is released from prison, he continues faithful to her, destroys *Hirs* by the “person of Contentment,” and getting rid of *aql-i-Maásh*, finds that *Khúshi* comes to him of herself.

2. This tale is not devoid of ingenuity, and conveys good advice in a pleasing disguise. The language, however, is not equally commendable. It is in the Lucknow fashion; and, being *muqaffá*, the exigencies of the jingle have the usual effect of necessitating meaningless and redundant phraseology. The author writes expressly for the benefit of the schools, in which he says that Vernacular books suited for teaching a polished style are entirely wanting. His intention is good, but his idea of a good style is based on provincial prejudices; with which, in the presence of superior models of Oordoo writing, I must decline to sympathize.

3. The author does not apparently submit the work with reference to the prize notification; but in the hope that some copies may be purchased for use as prize-books in Vernacular schools. I should be glad to take 400 copies for use in the department, if His Honor approves, at once.

From R. SIMSON, Esq., Secy. to Government, to M. KEMPSON, Esq., M.A., Director of Public Instruction, N.-W. P., (No. 1471A).—Dated *Nynce Tul*, the 6th September, 1869.

SIR,—I am directed to acknowledge the receipt of your Memorandum No. 1093, dated the 14th ultimo, submitting your opinion on the merits of a book styled "*Ainul-i-Firāsāt*," by Mahomed Hossein, Deputy Inspector of Schools in Oudh.

2. His Honor the Lieutenant-Governor concurs with you in approving the design of this little work (28 pp). Though there is nothing very remarkable or ingenious in the allegory, yet the moral is good, and its perusal may prove entertaining to the Native reader.

3. His Honor is not disposed to agree with you in objecting to the book as unsuitable for reward under the Notification of 20th August, 1868, because of its style. Your judgment preferring the Delhi to the Lucknow standard of composition may be just; but we certainly have not yet reached such a settled style for Oordoo prose as would justify us in the rejection of a book like the present because of its alleged provincialism. The language of Lucknow may have defects, but it also must have excellencies which have made it popular over a large extent of country. Moreover, it would be a vain attempt to repress and suddenly change so widely received a style. Variety of idiom and writing may have its special advantages; and, in the end, out of the different styles in vogue throughout these Provinces, we may hope that an elegant, chaste, and simple language will be developed.

4. With this view, the Lieutenant-Governor thinks that the little *brochure* under consideration deserves encouragement. Five hundred copies may be taken; and, as a mark of approval, a small reward of Rs. 50 may be given to the author.

5. At the same time it would not be inappropriate if you were to point out to the author some of the most objectionable features which you observe in his composition, and suggest their avoidance in future works of similar object and tendency which he may be invited to undertake, and which the Lieutenant-Governor will be glad to receive.

ETHICAL TREATISE IN OORDOO BY PUNDIT KASHEE NATH,
OF AGRA.

Memorandum by M. KEMPSON, Esq., M.A., Director of Public Instruction, North-Western Provinces.—Dated the 8th October, 1869.

Akhlâq-i-Kâshi—Oordoo M.S., 150 pp.

THIS is likely to be a useful and very popular compilation. Its contents may be briefly described as Mahomedan moral science and etiquette, arranged and epitomized for use in Hindoo and Mahomedan families and schools. I have long wished for a respectable manual of this kind, and have often suggested to my Native acquaintance the compilation of a moral class-book based on the accredited ethical treatises in the Persian language. The *Akhlâq-i-Kâshi* fulfils these conditions, though I am far from considering the book perfect or complete, and it has the advantage of coming before the Native public as the work of a gentleman of position and influence. The three well-known Persian works—*Akhlâq-i-Jalâli*, *Akhlâq-i-Nâsiri*, and *Akhlâq-i-Mohsini*—form the basis of the compilation, and the author assumes without hesitation the suitability of the system to Hindoo and Musalman alike. As a matter of fact, most Hindoo gentlemen in the Upper Provinces have made these works the subject of study. Their literature, outside the domain of Sanskrit, contains nothing

so practical or systematic; and, next to local association and a common speech nothing probably, has more tended to blend the two classes in a social point of view than the study of Persian classics of this character. Mahomedans have undoubtedly adopted many Hindoo customs; but, on the other hand, the latter may be said with equal truth to have imbibed many Mahomedan notions. Pundit Kashee Nath tells us that his reason for undertaking the task is that the study of Arabic and Persian is falling into desuetude, and the benefit to be derived from the study of such treatises as those named above is consequently in danger of being lost.

2. The translation is well done in so far as that it does not read like a translation. The compiler has, moreover, introduced reflections on his own part, intended to enhance the value of the work in relation to the present state of Native society—no small merit in a compilation of this kind,—and has added expressions here and there which add to the breadth of view taken. In a system of philosophy so intensely human as this is, the subject of religion holds a subordinate position, and there is, consequently, nothing to offend the prejudices of sects. For instance, in this epitome, the moral duty of religious worship is considered in the following three aspects only, *viz.*:—(1) Worship in a form referable to the body, as fasting, pilgrimage, visiting holy places, &c.; (2) worship in a form referable to the soul, as faith, meditation, &c.; (3) worship as conveyed in what relates to others, as charity, honest-dealing, &c.

3. At the same time, I cannot say that any great amount of real science is contained in the treatise. Possibly this arises from the want of a fuller commentary, and a more accurate unity; but it is certain that the most difficult points receive less consideration than the more obvious. Notwithstanding this, I think highly of the work as an elementary manual, and propose to adopt it at once as a class-book in Normal and Vernacular Schools. I have, therefore, attached

to this Memorandum a full analysis of the contents of the book, with explanatory notes, in order that His Honor, who may not care to read through the whole treatise, may be fully informed of what it is I wish to introduce into our school courses. I am familiar with the ground, and it has cost me little extra trouble to draw up the analysis.

4. I am further of opinion that the work deserves prominent recognition under His Honor's Prize Notification. Pundit Kashee Nath is a man of position and property, and the form of reward should perhaps be a *khillut*, bestowed, if agreeable and convenient to His Honor, with his own hands at Agra.

ANALYSIS OF THE "AKHLAQ-I-KASHI"

PART I.

On the education of the young generally.

CHAPTER I.

SECTION 1.—On the excellence of man as compared to other animals.

SECTION 2.—On the kinds of perfection attainable by man.

SECTION 3.—On the importance of morals.

CHAPTER II.

SECTION 1.—Twenty-three directions for the guidance of parents in bringing up their children.

SECTION 2.—Female education:—page 17.

NOTE.—[The twenty-three directions in the first section of this chapter enter into minute particulars for guidance from babyhood to puberty. The first relates to the naming of the child, and shows the great disadvantage of an ill-chosen name to a man in after-life, when he becomes a *Sadr-us Sudûr*, for example, or a Judge. The second relates to the choice of a *dâi*,—a point which is considered to be of the greatest importance.

In the 13th, travel is recommended for young men, but the author apologizes for introducing the subject, being aware that سفر and سفره are considered to be convertible terms by the majority of his countrymen. The last direction relates to marriage; and it is laid down that the daughters should not be married too young, or before they are properly educated, or with extravagant display.

The 2nd section is, of course, the author's own entirely, as the subject is not noticed in the manuals from which he compiles. He touches the tender tooth in noticing the existence of numerous immoral publications; and rightly, I think, suggests that they should be suppressed as far as possible by the action of Government.]

CHAPTER III. INSTRUCTIONS TO YOUTH IN SOCIAL OBSERVANCES.

SECTION 1.—The etiquette of conversation. Thirteen hints or rules given.

SECTION 2.—The etiquette of deportment. A word of advice from the author notes the necessity for exercise. This is followed by seven hints on deportment.

SECTION 3.—The etiquette of dining (eating and drinking). A remark as to the blessing of health is followed by eight rules for practice (*dastūr*).

SECTION 4.—Religious duties; page 29.

NOTE.—[Section 1, on conversation, contains most useful and apt hints for youth, and concludes with the useful proverb, دو کان اردو ایک زبان

The 10th rule condemns movements of the eye, eyebrow, or hand, as bad manners.

Section 2.—This is evidently intended for adults. It is somewhat ludicrous to find them told not to play with their beards or whiskers, or *other* members; not to put their fingers in their mouths or noses, or expectorate in a disgusting manner, or blow their noses with their fingers, or sleeves, or the skirt of the coat.

Section 3.—The etiquette of dining is equally minute, and is better adapted for children than for grown up persons. The 1st *dastūr* is as follows:—"When you are about to dine first wash your hands and mouth, and nose. When you are a guest, do not help yourself first. When you play the host it does not matter. Do not fill your hands too full, nor dirty your dress. Help yourself to moderately-sized morsels. Do not swallow in a hurry without chewing, but do not carry your chewing to excess. It is not pretty to lick your fingers, but don't let them be too greasy. It is bad manners to smell the dishes or pry into their contents. If there is a particularly nice dish, do not eat much of it yourself, but allow the others to enjoy it. Do not stare at your companion's mouth while he is eating. Eat of the dish which is placed before you, and not from those placed before others. Do not put things out of your mouth on to bread or the plate, and do not eat so as to drop your food about."

Section 4 has been already alluded to in paragraph 1 of memorandum. In addition to the threefold description of worship there noticed, three other matters are named under this section as constituting the substance of true worship,—(1), faith in God; (2), right speaking; (3), right doing.]

CHAPTER IV.—DUTIES TO SOCIETY.

It is explained that mankind consists of three ranks classes, and the mode of dealing with all these is laid down.

RANK 1.—*High*. Of which there are *four* descriptions:—(1), parents; (2), tutors; (3), kings and rulers; (4), learned men. The last are classified as *six* of sorts.

RANK 2.—*Middle*. Of which there are *six* descriptions:—(1), friends; (2), enemies; (3), relatives; (4), neighbours; (5), guests; (6), personal attendants.

RANK 3.—*Low*. Of which there are *four* descriptions—(1), servants; (2), petitioners; (3), pupils; (4), worthless individuals.

NOTE.—[Under the head “Parents,” in Rank 1 the directions are very exact,—even to the enunciation of a difference between the father and mother, on the ground that the rights of a father relate more to the soul, and of a mother to the body: page 83. Under the head “Worthless and Mean Folk,” in the 3rd rank, the Persian proverb is quoted, *بازاري را نيازاري* [بازاري چنان ازاري كه بازاري] I have used the term “description” for the subdivisions in the three مراتب or ranks. This is an instance of the difficulty of finding terms in translating works of this kind, which fully convey the nice shades of meaning which the Arabic vocabulary affords. The subdivisions of the 1st مرتبه are called صنف in the original; of the 2nd كیفیت and of the 3rd منفعه and, though it is not difficult to understand the intention of the words, it is not so easy to fix on English terms which correspond in a similar connection. The English word “quality,” as used in the phrase “people of quality,” answers to صنف well enough; but the other two remain unprovided; and I have, therefore, preferred to use the middle term “description” for all alike.]

PART II —PAGE 58—107.

NOTE.—[The ethics of the compilation are contained in this and the third part, which are, therefore, the most important portion of the treatise. Part I. belongs to manners rather than morals, and may be regarded as a kind of practical introduction to the science.]

CHAPTER I.—THE FOUR MORAL EXCELLENCES.

SECTION 1.—*Hikmat*, حکمت (the science of right-knowing and right-doing,) and its divisions.

SECTION 2.—*Adalat*, عدالت (equity, or the science of establishing equilibrium in an ethical sense), and its divisions.

SECTION 3.—*Shajdaat*, شجاعة (bravery.)

SECTION 4.—*Iffat*, عفت (to which the English words “virtue” or “chastity” nearly correspond.)

CHAPTER II.—THE EIGHT DEVIATIONS FROM THE ABOVE FOUR EXCELLENCES.

NOTE.—[There are two deviations زياد or انحراف in each case;—the one being properly the excellence in excess, and the other the excellence in defect (deficiency); and it is the fact of the excellences being, as it were, *via media*,—or, in other words, representing a condition of moral equilibrium,—that gives them their value in the eyes of the oriental philosopher. In dealing with these deviations, eight technical terms are used, for all of which it is impossible to find English equivalents. *Hikmat* in excess is سفاهت or being too knowing; and in defect it becomes لاهت which implies a dogged refusal to think at all. For *adilat* the deviations are ظلم and اظلام which looks as if the author was puzzled how to carry out the theory; for there are signs here of his attaching a particular instead of a general sense to *adilat*. In the case of *shajdaat* there is no difficulty; but with *iffat* again, unless it is used in a negative or restricted sense, the terms for deviation, viz., شهوة *vehement desire*, and ضد *disinclination*, cannot be said to represent excessive chastity or defective chastity, respectively. The conclusion is that *iffat*, which is usually taken to mean chastity, means rather moderate desire, or desire held under control. This chapter is difficult, and has been slurred over in the compilation.]

CHAPTER III.—ON SPURIOUS EXCELLENCE.

(1.) The marks of a spurious *Hakim*.

(2.) ” ” *Adil*.

(3.) ” ” *Shajdaat*.

(4.) ” ” *Afif*.

NOTE.—[This chapter is feeble and sketchy ; and the comments made are calculated to inculcate the ungenerous philosophy that every man is an impostor until he gives proof to the contrary.]

CHAPTER IV.—BRANCHES OF THE FOUR EXCELLENCES UNDER
TWENTY-TWO DISPOSITIONS, *عقائد* viz:—

Patience, modesty, politeness, judgment, magnanimity, diligence, firmness, forgiveness, mildness, good-nature, generosity, humility, honesty, keeping one's promises, truth, deliberation, concord, prudence, emulation, secrecy, reputation.

NOTE.—[Each of the above is shortly defined and explained, and stories in illustration are added. Their connection, however, with the four excellences is not traced, and there is consequently an interruption in the unity of the treatment.]

PART III.—PAGE 3 to END.

CHAPTER I.—THE PRESERVATION OF THE “ MENS SANA.”

Six rules are given for this. [This should rather be five rules and a summary.]

CHAPTER II.—REMEDIES FOR MENTAL DISORDERS OR
OBLIQUITIES.

SECTION 1.—The general nature of the remedies to be applied with reference to the three chief faculties of the mind, viz., *tamiz*, تمیز *dafa* دفع and *jazb* جذب

SECTION 2.—Remedies for disorders in the قوت تمیز

„	3.	Ditto	ditto	قوت دفع
„	4.	Ditto	ditto	قوت جذب

NOTE.—[This is a very curious dissertation. The considerations are fine-drawn and intricate. The diagnosis of the mental disturbances depends on the mental conformation represented by the above-mentioned faculties ; but the very

mention of *tamiz* indicates that a confusion of the principles of moral and mental philosophy has taken place. The doctrine of the remedies is made as far as possible to correspond with the practice of physicians in dealing with bodily diseases. Their curative measures are classed as diet, medicine, poison, and cautery, or amputation, according as the diagnosis determines; and so in mental ailments the object is to discover the seat of the disorder, and apply mild or severe measures accordingly.

The three faculties being assumed, as aforesaid, to be *tamiz*, *dafa*, and *jazb*, it is laid down, after the fashion of Part II., Chapter 2, above, that each faculty may have two deviations *انحراف* on the side of excess or defect; or the faculty itself may be bad in quality: so that three disorders are possible in respect of each faculty, *viz.*, two in respect of its *کمیت* and one in respect of its *کیفیت*. The last is also called *دادات*, *raddât*, which expresses worthlessness.

Section 2 discusses the remedies for the three disorders of the *قوت تمیز*. These disorders are — (1), *حیرت*, *hairat*, where an excess of the *قوت تمیز* has produced the mental confusion indicated by *حیرت* (2), *جہل بسیط*, *jahl-i-basit*, where a deficiency of the faculty has produced utter indifference to knowledge, though the man knows he is ignorant; (3) *جہل مرکب*, *jahl-i-murakkab*, where a kind of obliquity in the mental vision causes a man who knows nothing to think himself very wise. The cure of the first is *منطق* chiefly; of the second, example, or an appeal to the man's common sense. The third is held by philosophers to be incurable.

And so on for sections 2 and 3.]

CHAPTER III.—CONCLUSION.

SECTION 1.—The sayings of various philosophers, Plato, Lukman, Aristotle, &c.

SECTION 2.—Facetiæ.

SECTION 3.—A collection of apothegms, arranged alphabetically.

M. KEMPSON,

Director of Public Instruction, N.-W. P.

From R. SIMSON, Esq., *Secy. to Government*, to M. KEMPSON, Esq., M.A., *Director of Public Instruction, N.-W. P.* (No. 2244A).—*Dated Allahabad, the 6th November, 1869.*

SIR,—Having laid before the Hon'ble the Lieutenant-Governor your memorandum dated the 8th ultimo, on the *Akhlâq-i Kâshû*, an ethical treatise by Pundit Kashee Nath of Agra, I am directed to communicate the following observations.

2. His Honor concurs with you in thinking that the Pundit has produced a work that is likely to be popular and useful. It is true that the treatise has no pretensions to originality, being a mere compilation from the popular Persian works on ethics; and that, even as a compilation, it is in many respects meagre and defective. But nevertheless it is well suited for the present condition and tastes of the people, and will be favourably received by them. Upon the whole, also, the lessons inculcated are calculated to exercise a beneficial influence on the young, while there is an entire absence of anything prejudicial. The book may, therefore, with great advantage be introduced into our schools as proposed by you.

3. It is significant of the influence which Persian literature has asserted over the people of India, that a Hindoo gentleman and a Pundit should ground his system of morals so closely and unquestioningly on the model of

the " Akhlâq " of the Persian writers from whom he quotes. It is also remarkable to find a Hindoo writer casting his style and language so entirely in the Persian type. Indeed, the frequent introduction of Persian phrases and sentences appears to the Lieutenant-Governor to be a serious defect in the work, especially as a school book ; although, as remarked by you, the body of the work is composed for the most part in easy and appropriate Oordoo, and has none of the stiffness and strangeness of a translation about it.

4. Looking at the treatise as a whole, the Lieutenant-Governor is glad to be able to join with you in recognizing it as a valuable addition to our vernacular literature, and as fully warranting recognition and reward under the Notification of September, 1868.

5. A *khillut* of the value of Rs. 500 will be conferred on Pundit Kashee Nath as a reward ; and, as suggested by you, it will give His Honor great pleasure to confer it on the Pundit at Agra in a Public Durbar.

6. An edition of 1,000 copies may be printed for the use of Government.

Art III.

BUILDINGS OF ARCHEOLOGICAL INTEREST IN THE FORT OF AGRA.

*Resolution No. 3138, by His Honor the Lieutenant-Governor,
North-Western Provinces, in the Public Works Department,
under date the 13th June, 1878.*

OBSERVATIONS.—The Lieutenant-Governor, on his late visit to Agra, inspected the fort, and found that many places of interest in it were crumbling to pieces. In particular, one entire side of the square commonly called the Jāt quarter had come entirely down, and the beautiful Hindoo columns were massed in a heap in the centre of the square. The remainder will no doubt, if not supported, ere long share the same fate. A high adjoining cupola of Mahomedan architecture is also in a dangerous predicament, and it is proposed to take it down.

2. It seems to His Honor that it will be important that Lieutenant Cole should proceed to Agra, and, in concert with Sir Edward Leeds, report what parts of the ancient structure that are now in a dangerous state from decay should be repaired and maintained.

3. In the deteriorated state in which a great part of the old buildings of the fort are, it would evidently not be possible, excepting at a prohibitive cost, to keep the whole from going to ruin; but it may be possible to single out the parts of chief interest, and to take measures for preventing them from being further deteriorated.

4. The great black stone of Akbar has been parted wide asunder where it was formerly cracked, and one of the iron rods that had been inserted to join the two part removed. The parts of the stone should be brought together.

5. The brass over part of one of the alcoves on the river face has been removed: it was said to have been carried off by thieves, but recovered. Why it has not been replaced does not appear.

6. The great marble basin has been removed from the arsenal square to the cantonment gardens. It must not be lost sight of, as it may hereafter be desirable to utilize it for some public purpose. So, also, the beautiful cupola in the Muchee Bhawun. Half of it has been brought down by injuries occasioned by the fire in 1857-58. The pieces should be carefully collected. It would evidently be impossible again to erect it *in situ*; and it may, therefore, be possible to transfer the whole to some public position where its beautiful proportions and carving would be seen by the public. Perhaps the Museum at Allahabad would be a suitable place.

7. The inlaying of the Dewan Amm and Mehals has been sadly desecrated. In many places no stones of any beauty remain, and the marble has been hewn and cut, in order to the extraction of the coloured pebbles. His Honor has already noticed this, and taken measures to put a stop to it. It had no doubt been going on more or less for many years; but an inspection shows, from the recentness of the hacking of the marble, that a very great amount of injury has been of quite recent date, and evidently done by the soldiers. No further damage of this nature will now be permitted.

No. 2370—Allahabad, the 25th May, 1869.

READ again the following report by Lieutenant H. H. Cole, R.E., dated 4th August, 1868:—

“In accordance with the instructions conveyed in Resolution No. 3138 of 1868, dated 13th June, by His Honor

the Lieutenant-Governor, North-Western Provinces, I inspected the buildings in the Fort at Agra, and have the following report to make :—

Report.

"1. The buildings which should be preserved from decay are—

The Jehangeer Mehal.	The Summun Boorj.
" Amm Khas.	" Small Mosque near the
" Khas Mehal.	Am Khas.
" Dewan-i-Khas.	" Motee Musjid.

and the cupola and Chittore Gates in the Muchee Bha-wun should be removed and built up elsewhere in the Fort.

"2. The Jehangeer Mehal was built by Akbar, and consists of one pavilion, singularly elegant in design. It is of red sand-stone, and all the ornaments are honestly carved in relief on the stone. The interior details are all Hindoo, and characterized by that peculiar aversion to an arch which Akbar alone, of all the Moslem monarchs, seems to have adopted. Jehangeer chose this building as the residence of his two Hindoo wives, the princesses of Umbare (ancient name for Jeypore) and Marwar; and this evidence of kindly feeling to the Hindoos lends additional interest to the building, and affords sufficient reason for its maintenance as a historical as well as an architectural monument. At present it is little better than a ruin, which climate and neglect combine to make worse. The white-wash, which is liberally laid on in the north court, should be removed, and the whole of the existing stone-work rendered secure by iron cramps run with lead. I think that any attempt to restore the building would prove at once difficult and expen-

sive, and that the work of maintenance should be limited to preserving the present standing parts, and no attempt made to replace the fallen stone-work which now lies heaped in the centre of the court. At present the rain finds easy access through upper windows on to the floor of the north gallery, and, percolating through the stone floor, has destroyed the coloured ceilings and produced great decay. Water oozes through the flat roof all round the central court; grass and weeds crop up everywhere; and the sweeper of a neighbouring sergeant's quarters finds the parapet of the roof overlooking the interior court a convenient asylum for all kinds of refuse.

"3. Close to and on a level with the roof of the Jehangeer Mehal is a very interesting Hindoo pavilion in fair repair. The white-wash should be removed, and the roof strengthened with cramps and cement.

"4. Close to this are some tanks which were used to fill the baths belonging to Shah Shah Jehan, 1628-1638. Jehan's palace and harem, and to supply the palace fountains. There are several pipes leading from the side of the tank, above which the names of the baths or fountain they supply are carved in relief on circular discs of stone. These tanks should be kept in repair, and rendered accessible to the public.

"5. The Amm Khas (or audience chamber) was built by Shah Jehan, and is now used as an Armoury. To adapt it to the requirements of the latter, windows of a European pattern have been built in on the west front, and the whole of the interior white-washed, so that little remains of its former splendour. It is, however, in good repair.

"6. I now come to the marble buildings—namely, the Khas Mehal, the Summun Boorj (or harem, and the Dewan-i-Khas (or private hall of audience)—which, together

with the Amm Khas, formed Shah Jehan's palace, and were built by that Emperor in white marble, inlaid with precious stones. In front of the Khas Mehal is a garden, surrounded on three sides by colonnades not so remarkable for architectural beauty as for the extreme decay into which they have fallen. The marble building consists of three pavilions overhanging the river: and, together with its terrace and fountain, are in a fair state of repair, and require only to be carefully inspected, and the commencement of ruin stayed. The baths on the west side should be preserved, and not suffered to follow the inevitable fate of the adjoining buildings round the garden, near which it is dangerous to stand.

"7. Some steps (at *a*) in front of the Khas Mehal lead by underground passages in the direction of the well on the east of the Jehangeer Mehal. These passages are blocked up now, but were no doubt used by the ladies of the harem to get to the well, which is very remarkable for the suites of apartments existing round the bottom and on a level with the water. The well and passages should be maintained.

"8. The Summun Boorj (or private apartments of the harem) overlooks the river. The hole made by one of Lord Lake's cannon-balls in 1803 may still be seen in the marble screen on the west. The beautiful polished marble pillars and elegant arabesques of flowers, inlaid with precious stones, have suffered much through the combined influences of Time and the British soldier, the latter having extracted a great number of the stones, and therefore damaged the marble. As far as the safety of this building is concerned, I recommend that the pillars be strengthened with iron cramps and bands, and fallen pieces of marble renewed. I believe that Sir E. Leeds, the Executive Engineer, at one time recommended that the holes

caused by the mischievous extraction of stones should be filled up with cement, to enable fresh damage to be discovered. I think, however, that the building would lose a great deal of its interest if this plan were adopted. It would not be so easy to form an idea as to what the inlaid work had been; and, moreover, the very fact of theft having taken place is evidence of the existence of stones sufficiently valuable to steal. These remarks apply equally to the Dewan-i-Khas, which has also been much damaged.

"9. With reference to all the marble inlaid work, I would recommend generally that decay be stopped as far as possible, but that the buildings should be left as much as practicable in their present state. Unless a complete work of restoration be entered into, it would be better to let the public see the buildings as they are, and to leave the softening influences of Time to convey a full impression of respect for a bygone age. The inlaid work in the Dewan-i-Khas is very fine, and the building itself is in the best style of Shah Jehan's reign. This building is only accessible by a ladder from the Summun Boorj, and when the tumble-down buildings of the Muchee Bhawun have been removed or fallen in, there will be no communication, as now, with the Amm Khas. Some means of approach should be provided for the public, and I think the best would be a stair-case from the court of the Muchee Bhawun. Overlooking the river on the terrace of the Dewan-i-Khas is a large black marble stone, broken at one corner. This is erroneously called Akbar's Stone, and the *raised* inscription round the edge proves that it was for Salem, the son of Akbar, afterwards the Emperor Jehangeer; and a more recent *cut* inscription bears the name of Jehangeer, and the numerical value of the letters testify to 1605 as the date. The stone should be mended with iron bands (not bars put into its length, as before). The west gateway of

the Muchee Bawun contains some handsome bronze gates which were brought by Akbar from the Fort at Chittore. These should be removed to the Amm Khas.

"10. The marble cupola on the east of the Muchee Bhawun has been partly taken down, as a measure of safety. It was a work of Shah Jehan's time, and in design is a mixture of Italian and Mahomedan styles. This cupola should be removed to some convenient position in the Fort, as an evidence of the influence of Italian art on the art of Shah Jehan's time. Some deny that the Taj Mehal was designed by an Italian, but I think that the character of this cupola goes far to prove that Shah Jehan employed Italians in the decoration of his buildings. On the west of the Amm Khas is a small white marble mosque, built on the roof of a red sand-stone building. Formerly it was in communication with the Summun Boorj by a screened passage which passed along the back of the Amm Khas and over the west buildings of the Angoree Bagh. This mosque is in very fair preservation, and should be maintained.

"11. The last building worthy of preservation is Shah Jehan's Motee Musjid, one of the most elegant mosques of his time. Its court-yard is of pure white marble, from the pavement to the domes. Vegetation is commencing to destroy the latter, and some cornices in the ceiling of the mosque have fallen down; otherwise the building is in a good state. The best way to secure the ceiling would be to render the roof above perfectly water-tight. The Motee Musjid cost Rs. 3,00,000, took seven years to build, and was completed in 1652.

"12. With reference to the Somnath Gates, now in the Amm Khas, Mr. Fergusson says the following in his *History of Architecture of all Countries*:—"The oldest Jaina monuments now known to exist are probably those

about Junaghur, in Guzerat, and the temple at Somnath.' In another place he says :—' Mahmoud, of Ghuzni (977-1030), is one of the best known kings in Indian history, owing to his brilliant campaigns in India, and more especially that in which he destroyed the celebrated temple of Somnath.' In another place :—' The tomb of the great Mahmoud of Ghuzni is unknown to us except by name, notwithstanding the celebrity it acquired from the removal of its gates to India at the termination of our disastrous campaign in that country. These gates are of deodar pine' [the tradition that these gates were of sandal-wood and brought from Somnath is entirely disproved by the fact of their being of the local pine-wood, as well as by the style of decoration, which has no resemblance to Hindoo work], 'and the carved ornaments on them are so similar to those found at Cairo on the mosque of Ebn Touloun and other buildings of that age, as not only to prove that they are of the same date, but also to show how similar were the modes of decoration at the two extremities of the Moslem empire at the time of their execution."

"13. I must, however, differ with Mr. Fergusson, as there are carvings of animals on the gates, which prove them not to be Mahomedan. *Thornton's Gazetteer* gives the following :—

'This temple (Somnath) was taken by storm by Mahmoud of Ghuzni. It has been said, and the assertion has obtained pretty general belief, that the celebrated 'destroyer of idols' carried away as a trophy of his success a pair of gates which subsequently adorned his own tomb. On the retirement of the British army, however, from Affghanistan in 1842, this reputed trophy was considered of so much importance that its recovery and consequent restoration to Hindoostan were announced in a proclamation distinguished by remarkable elevation of language as avenging

'the insult of 800 years ;' and the chiefs and princes of Sirhind, Rajwarra, Malwa, and Guzerat were invited to transmit the gates 'with all honour to the place from which they had been violently removed.'

"14. As tradition points to these gates as being of the Somnath temple, and the gates themselves bear carvings of animals, I think that they are not, as Mr. Fergusson says, the work of the Mahomedans.

"15. The gates should be moved to a more convenient place for seeing them : at present they can be inspected on one side only."

Read, also, the following report by Major Sir E. Leeds, Bart., Executive Engineer, Agra Division, Public Works, dated 1st October, 1868 :—

"1. Lieutenant H. H. Cole, R.E., having reported on the buildings archæologically, and I having in my report, dated 30th September, 1867, shown what portions it seemed expedient to remove for the better security of the Arsenal, I will now endeavour to explain, in connection with them both, what course it seems advisable to pursue to maintain the better portions of the buildings, and then remark on those which, from their dangerous condition, it would be better to remove.

"2. With reference to the first, I cannot do better than take each building in the same order they are in Lieutenant Cole's report.

"3. The *Jehangeer Mehal*, with the exception of the front face, is in a very decayed state throughout. To check its rapid decay and the falling of large portions at no late date, much more will be required than is conveyed in Lieutenant Cole's report ; some of the supporting stones (piers), which are much decayed, require renewing, and a great

* This the British Government disapproved of on political grounds.

portion of the facing stones, which show signs of falling out very shortly, require to be reset with mortar, and the joints throughout to be filled in to prevent the rain-water from penetrating.

"4. I would also suggest the restoration of a small piece of the overhanging eaves and balconies in the quadrangle to illustrate its original design, which, from their being no perfect portion, does not at present readily suggest itself to the visitor, and which tended chiefly to enhance the richness of its outline.

"5. I do not think the method proposed by Lieutenant Cole for rendering the stone-work secure would answer; the iron cramps would not easily be fixed without unsettling the stone (already very loose) in doing so, and they would not, I think, have any binding properties; besides which they would soon corrode from exposure to rain. Repairs of stone and brickwork *alone* will be beneficial. The pavilion is part of the same, and appears to have been built at the same time; some of its pillars are unsound at the base.

"6. In my report for improving the security of the Arsenal, I proposed that the galleries of the Muchee Bhawun, forming three sides of a square, one of which is connected with the back of the Amm Khas, should be removed, and I contemplated opening out windows in that side of the Amm Khas similar to those on the opposite side to improve the ventilation and light by removing these galleries, which are in a very ruinous condition, and entirely disfigured by the brickwork built up in every direction to convert them into store-rooms. The Amm Khas would stand alone and be much more serviceable as an Armoury. Should this be carried out, it would be necessary to build a wall to enclose it within the Arsenal precinct.

"7. The Khas Mehal, the Summun Boorj, and the Dewan-i-Khas are the portions of the palace most worthy of retention and in the best state of preservation, though to put them in good repair will be expensive. The verandah pillars of the Summun Boorj are out of the perpendicular apparently from settlement, but it seems to have been of very old standing, for the ceiling does not seem injured; the verandah to the river side will require taking down and rebuilding, and the whole of the outer roofing of the Summun Boorj (which consists of terracing on beams) renewing, as the beams are entirely decayed. I believe that if the outer roofs of all these buildings were opened, it would be found that all the beams are in a similar condition.

"8. The Khas Mehal has some of the marble eave stones deficient, and portions of the marble screens are wanting. Some of the metal covering over one of the connecting passage is missing, as also some ornamental kulsas (the latter are in store); the whole covering requires to be taken off and refixed. The Dewan-i-Khas also requires a few eave stones and repairs to the roof and ceiling. The pieces of the black marble stones have been put close. Lieutenant Cole has overlooked the fact of there being two flights of steps from the Muchee Bhawun to the terrace of the Dewan-i-Khas.

"9. The marble cupola which was taken down in the Muchee Bhawun was very much injured about the piers, and, if it were re-erected, these and many other portions would have to be renewed.

"10. The white marble mosque is in good preservation; all it requires is to have all joints between the pieces of marble carefully pointed.

"11. The Motee Musjid, though in apparent good preservation, will require constant repairs. The large masses

of white marble are chiefly kept together by iron cramps, which, judging from those portions which have given way during the last two years, are all more or less corroded, so that the fall of portions may be constantly expected. The worst of it is, that in all such cases the marble floor gets seriously injured. The mosque, as also the alcove all round the square in front of it, consists of terracing over beams; and, as these beams are very old, I fear they are very much decayed and will ere long have to be renewed. A great deal of pointing is required to fill in the joints between the stones throughout the edifice, and some of the trefoil stone-work on top of the outer walls requires replacing.

"12. If these ancient buildings are to be preserved, I think the firing of guns within the Fort should be resorted to as little as possible. I lately had occasion to invite the attention of the Commanding Officer to the injury done to the Fort walls by firing the day gun close to the wall, and I am of opinion that it has a very injurious effect on all the buildings. There is no reason why the gun should not be fired in the cantonment as formerly.

"13. I think it would be well if a paid servant were put in charge of the palace buildings, and made responsible for any injury done to them, and that no one should be allowed to reside in any portion. At present there are quarters within the palace which are constantly occupied by artillery officers, and there is a pensioner's widow living in the Jehangeer Mehal; the servants are the cause of litter lying about, and they have no regard for the preservation of the buildings.

"14. I now come to the portions which, from their decayed condition, might with advantage be removed.

"15. The galleries on three sides of the Muchee Bhawun and on two sides of the Khas Mehal (or palace)

quadrangle. coloured black in plan attached, are in a very ruinous condition; parts of them are dangerous to pass under, from their walls leaning outwards, and, if not removed, will fall at no distant date. If they were removed and the ground in front of the Dewan Khas nicely kept, visitors would have a better view of the palace buildings than there is now, and there would be a clear passage round the Arsenal boundary, which is so desirable for its better security, for which purpose it was also recommended to clear away the ruined attendants' houses (also coloured black) to the west of the Muchee Bhawan.

"16. The cost of removing these ruins would be more than covered by the value of the building materials that would be obtained from them.

"17. The cost of thoroughly repairing the others, which it is proposed to maintain in a good state of preservation, will not be much under Rs. 25,000; but it is impossible to tell without thoroughly examining every part in detail, and to do this portions of the roofs must be opened. I would recommend that one building be taken in hand at a time, and thoroughly repaired, with the exception of mosaic work, and that a sum be granted for the purpose out of this and the following year's Budget."

Observations by His Honor the Lieutenant-Governor, North-Western Provinces.

On Monday last I went over the Fort with the Commissioner and Magistrate of Agra, and with Major Sir E. Leeds, Executive Engineer, and Lieutenant H. H. Cole, R. E.

The time has certainly now come for making a general and systematic arrangement as to what portion of the ancient buildings is to be preserved, and what not, and for clearing away the latter, which are at present in many

places in a dangerous state, and will daily become more so: also, for arranging definitively what is to be done to secure the portions to be preserved.

I agree in the proposals of Sir E. Leeds for removing the parts of the Muchee Bhawun and Khas Mehal which adjoin upon the Arsenal. If the Arsenal is to be retained in the Fort,—and that no doubt is strategically its proper place,—and if the Armoury is to continue, as I suppose it necessarily must, in the Amm Khas, then it seems absolutely required for the security of the arms and stores that these be surrounded by an open space, and so shut off from all the possibilities of surreptitious egress which the present ruinous buildings that march with the Armoury present.

It is true that the destruction of the portions of the two squares will remove much that is of interest in showing the original design and uses of these ancient imperial structures; but this cannot be helped. Enough will be left to illustrate the various styles of the buildings, though their complete form and outlines will no longer be traceable.

In taking down the northern side of the Muchee Bhawun, the gateway and brass gate may be preserved. The small mosque must also be carefully secured, and made easily accessible.

The pieces of the fallen cupola of marble on the south side must be carefully gathered and preserved, with a view to its re-erection hereafter in some suitable place.

The Jehangeerie Mehal is in a very ruinous condition; considerable portions have fallen, and more will follow. It will require care and judgment to determine what is to be preserved, and how it is to be done.

As much as possible must be retained, for the building is one of rare interest in architectural archæology. I think some young officer might be posted to the duty, who

would superintend all the pulling down and the arrangements for preservation. I agree in the general proposals in this respect both as to the Jehangeerie Mehal and the Motee Musjid.

This latter must, of course, be preserved in as complete a form as it possibly can be. But it will be difficult, and the building will require constant attention, so much of the work resting on iron supports, which, it is to be feared, are in many places nearly destroyed by corrosion. Several of the terraced vaults forming its roof must be removed and rebuilt apparently, or they will be in daily danger of falling. All the old wells should be preserved, and the more interesting of them made accessible.

I fear the work will be expensive, but the sooner it is put in hand the better.

As the works to be now undertaken will very largely remove the old land-marks and outlines of the buildings, courts, and squares, I think it will be right to preserve the memory of the Fort as it has hitherto stood by having a survey and account of it prepared, which can then be printed in our Selections. This should show accurately the ground plan of all the old buildings, with illustrations and sketches of the architecture; and a succinct account of their names and uses, and perhaps of some of the more likely traditions of the place.

If a young officer, as above proposed, can be put to the duty of superintending the work of removal and preservation, he might very appropriately accomplish such a survey and record of existing buildings as I refer to.

ALLAHABAD: }
May 1869.

W. MUIR.

Art IV.

EXPERIMENTS WITH EXOTIC AND HINGUNGHAT
COTTON SEED IN THE YEAR 1868.

No. 812 OF 1869.

*To R. Simson, Esquire,
Secretary to Government,
North-Western Provinces.*

Dated Allahabad, the 26th July, 1869.

SIR,

I am directed by the Board of Revenue to submit the Report on the Experiments with Exotic Cotton Seed in the year 1868, promised in paragraph 2 of their No. 486, dated 2nd July, 1868.

2. The following is an abstract of the Reports received by the Board.

3. *Boolundshuhur*.—The Collector distributed the seed supplied him to five persons. Of these, only three tried the experiment, as the seed arrived too late; and of these two only, Mr. J. G. Robertson, Assistant Settlement Officer, and Syud Mihrban Ally, Raees of Golaotee, have reported the result of their experiment. Syud Mihrban Ally sowed 8 seers of seed in 1 acre, 1 rood, 20 poles of land on 12th July, 1868. The land was prepared as usual. The crop was watered eight times. The first watering was given 24 days after sowing, and the subsequent waterings at intervals of from 8 to 11 days. The crop produced 9 maunds, 38 seers of uncleaned cotton, which gave an out-turn of 3 maunds, 10 seers in cleaned cotton. The cotton is whiter and finer than native cotton, but produces much less. The plant was suddenly attacked by the disease called "cheepa," which made the leaves yellowish and sickly-looking. Mr. Robertson sowed 1 seer of seed in 1 acre, 1 rood of land, which had been ploughed twice, and manured slightly. The crop was watered three times in August and twice in September. It produced 24 seers of uncleaned cotton, which gave 6 seers and 3 chittacks of cleaned cotton. The seed arrived much too late for a favourable experiment.

4. *Moradabad*.—A small quantity of seed was sown in two beegahs of land in the Government Garden on 16th June, 1868. The crop was watered six times to the close of February, 1869, and weeded as occasion required. The total expense incurred was Rs. 12-4. The crop yielded 30 seers of cotton, the value of which at the market rate amounted to Rs. 6.

5. *Mynpoory*.—Dr. Tyler, Civil Surgeon, reports that owing to the late sowing and the drought the experiment was a failure. He forwards a report of the Agri-Horticultural Society of Calcutta on samples of Hingunghât and Sea Island cotton grown by him. Mr. F. N. Wright, C.S., sowed 1 seer of seed in 1 village beegah of land. The soil was a medium between “Bhoor” and “Domut.” The seed was sown in the month of Sawun, and in consequence of deficient rainfall was watered many times. The total out-turn was 25 seers of uncleaned cotton. The staple is strong and silky, but the labour required to bring it to perfection puts it far beyond the reach of any cultivator.

Mr. Martin, Indigo Planter, received the seed too late in the season. He says that he has been regularly sowing all descriptions of exotic cotton (both American and Egyptian) for the last five years. The produce from exotic seed per beegah is nearly the same as of the indigenous staple, and, when proper care is bestowed in pruning and weeding, it is much larger. Like the indigenous plant it flourishes best in “Bhoor” or sandy soil, and when sown late in the season is subject to the attacks of caterpillars. In the second year the produce is greater than in the first; the quality of the cotton is also improved, and the plant is much stronger and able to withstand the drought and frost.

6. *Furruckabad*.—The Collector states that the reports received from the Tehseeldars show that in consequence of the unfavourable season last year, the seed supplied them was either not sown, or, if sown, was totally destroyed.

In the Jail some seed was sown in $6\frac{1}{2}$ biswas of “Domut” land well-manured from the Jail privies. The yield was 113 lbs. in uncleaned, and 28 lbs. in cleaned cotton.

7. *Etawah*.—The experiment was tried in Pergunnahs Etawah, Bhurtna, and Bidhoona. In the two latter it was a complete failure. In Pergunnah Etawah, 20 seers of seed were sown in 33 beegahs of “Burrooa Chabee” land. The expense incurred was Rs. 147-11-6, viz:—

Compensation for value of			
standing crop ...	... Rs.	9	0 0
Ploughing ...	... „	14	0 0
Sowing ...	... „	11	0 0
Irrigation ...	... „	66	1 6
Weeding ...	... „	24	8 0
Supervision ...	... „	4	0 0
Picking kupas ...	... „	5	0 0
Land rent ...	... „	14	2 0
<hr/>			
Total ...	... „	147	11 6
Yield of kupas 6 maunds,			
23 seers, at the market			
value ...	... „	32	0 0
<hr/>			
Excess Expenditure ...	... „	115	7 6

The Collector attributes the unsatisfactory result obtained to want of rain.

8. *Banda*.—The experiment was tried in nine different places in the district. The average out-turn per acre was 12 seers, 4 chittacks, against 15 seers, 13 chittacks of country cotton, and the proportion of seed to cleaned cotton was slightly in excess of two-thirds. The staple is undoubtedly longer, cleaner and more glossy than the country cotton, but the plants require more care than the cultivators of the Banda District will bestow on them.

9. *Futthpore*.—The seed arrived too late in the season, and the cultivators declined to try the experiment. In Pergunnah Kora, however, 8 beegahs and 18 biswas of land were

sown, but, owing to the indifferent season, the experiment proved a failure. The results were as follows:—

Bghs. Bis.

In	5	18	seed did not germinate.
„	1	13½	plants dried up.
„	1	6½	nine seers of cotton were obtained.

10. *Humeerpore*.—Seven seers of seed were sown in 1 beegah, 9 biswas of “Purooa” land in the Collector’s compound. The crop yielded 695 lbs. cotton in pod, and 175 lbs. of cleaned cotton.

In Pergunnah Humeerpore, 3½ seers of seed were sown in 1 beegah, 8 biswas of “Purooa” land. The crop yielded 264 lbs. of cotton in pod, and 84 lbs. in cleaned cotton. In Pergunnahs Raat, Punwaree and Mahoba, the plants grow to a height of six inches, and then withered away. In Pergunnah Mondah, the seed did not germinate.

11. *Jounpore*.—The experiment was tried in the Jounpore Fort. Twenty-four seers of seed were sown in 2 acres, 2 roods, 15 poles of “Muttyar” land. The yield obtained was 18 maunds, 20 seers, kupas, to 5 maunds, 11 seers, of cleaned cotton. The cost of the experiment amounted to Rs. 114, while the value of the out-turn exceeded Rs. 160. The staple is good, superior to that of country cotton, and of a better description than the Hingunghât Cotton.

12. The Superintendent of Dehra Doon and the Collectors of Moozuffurnuggur, Seharunpore, Shahjehanpore, Agra and Cawnpore report that the seed arrived too late to try the experiment.

13. *Muttra*.—The seed arrived too late for distribution.

14. *Bynour, Budaon*.—The experiment was a failure in these two districts.

15. The above summary of replies from District Officers shows that the experiment, like that of the Hingunghât seed, was made under unfavourable and trying circumstances.

16. The seed was distributed at too late a period of the season. The late sowing rendered the plants particularly liable to attacks from caterpillars (as proved by Mr. Martin’s experience).

17. When a crop was raised the whole was fine, and finer than the ordinary produce of the country. Mr. Wright, Assistant Collector, Mynpoory, remarks, however, that, though the staple is strong and silky, the labour required to bring it to perfection puts it far beyond the reach of any cultivator. The staple of the cotton produced in Jounpore was good, and superior to that of country cotton, and of a better description even than Hingunghât cotton.

18. Sufficiently definite information is not furnished by the Government officers and the gentlemen who have experimented with the cotton seed to enable the Board to institute a comparison between the out-turn of exotic and of the ordinary cotton. Mr. Martin, in the Mynpoory District, who has had considerable experience in cotton cultivation, writes that the produce from exotic seed is nearly the same as that raised from the indigenous seed, but if proper care is bestowed in pruning and weeding it the yield is much larger.

19. No less than eight District Officers reply that the exotic seed reached them too late for distribution and a fair trial of experiment.

20. The Board would solicit the attention of the Lieutenant-Governor to paragraph 6 of their letter No. 813, of this day's date, the recommendations therein submitted in regard to future trials of the Hingunghât cotton seed being of course equally applicable to experiments in American seed.

I have, &c.,
W. C. PLOWDEN,
Secretary.

No. 813 OF 1869.

*To R. Simson, Esquire,
Secretary to Government,
North-Western Provinces.*

Dated Allahabad, the 26th July, 1869.

SIR,

I am directed by the Board of Revenue to submit, for the information and orders of His Honor the Lieutenant-

Governor, the accompanying abstract of Reports on the experiment with Hingunghât cotton seed during the year 1868.

2. The Hingunghât cotton seed has had scarcely a fair trial. The distribution took place when the season was too far advanced. The season, moreover, was unfavourable owing to the general prevalence of drought. In one instance the failure of the crop is attributed to heavy rain. In the Bareilly District, the plants suffered severely from frost.

3. The cotton, when the experiment resulted in a crop, is favourably spoken of in regard to quality. Mr. Powell, of Shahjehanpore, pronounced it to be far superior to the cotton of the district. The Collector of Moozuffurnuggur states that the fibre is far superior to that of the country cotton, and is much admired by cultivators. Mr. Michel, of the Meerut District, reports that the heaviest of the bolls were not a bit larger than those of the country cotton, though of a longer staple, and much more silky in feel and appearance. The Superintendent of the Botanical Gardens at Seharunpore pronounced the quality to be good, the fibre being longer, softer and thinner than that of country cotton. Mr. Haworth, of Agra, reports very favourably of the Hingunghât, and gives it the preference over the New Orleans cotton. The Hingunghât cotton produced in the public garden at Benares proved to be cleaner and more glossy, and to possess finer fibres than country cotton. The cotton grown at Etah was softer and more silky than the ordinary kind, and longer in staple. Dr. Dutt of Lullutpore reported the cotton produced to be stronger in fibre and more glossy and to make better thread than the ordinary cotton of the district. On the other hand, Mr. Dunne complains that the Hingunghât cotton was shorter in staple than the produce of the indigenous plant; and Mr. Sturt of Jhansie reports that the description of cotton was in no way better than that ordinarily known in the district.

4. There can be no doubt of the superiority of the Hingunghât cotton over the produce of the common country plant of these Provinces as regards the quality of the yield; but with regard to the comparative quantity of the yield the

information from the different districts does not afford sufficient grounds for arriving at a definitive and certain conclusion.

5. Mr. Powell, of Shahjehanpore, considers the yield would be much the same as from the ordinary crop grown. The Collector of Banda reports that the yield bears favourable comparison with that from country cotton seed, the average out-turn of cleaned cotton from the former being 24 seers, 5 chittacks, and of the latter 15 seers, 13 chittacks. The smallness of the out-turn in Moozuffurnuggur is attributed to the late arrival of the seed, and in the Boolundshuhur District to the seed being sown in shaded land. The out-turn of the seed sown in the Seharunpore Botanical Garden appears to have been far below the usual yield raised from country seed. From the detailed Report it is clear that the experiment was a total failure as regarded its affording any satisfactory grounds for a conclusion as to the ordinary out-turn of Hingunghât seed.

6. But the experiment undoubtedly justifies the belief expressed by the Commissioner of Allahabad that the description of cotton would be found suitable to these Provinces, and would be extensively cultivated (the Collector of Moozuffurnuggur notes that it is a favourite with cultivators). The Board would recommend that early measures should be taken to ensure the distribution of a sufficient supply of the seed by the end of May at the latest; that equal quantities of Hingunghât and of country seed be sown in contiguous plots of the same size and of the same quality of soil; that both be treated alike in every way regarding watering, manuring, weeding, &c., and the results carefully reported. Mr. Webb, of the Meerut District, correctly describes the object of the experiment made by Government as being to ascertain, under equal given conditions of soil and cultivation, the comparative value of two descriptions of cotton.

I have, &c.,

W. C. PLOWDEN,

Secretary.

Abstract of Reports received in reply to Board's reminder of 20th March, 1869, on the result of the experiments made with Hingunghât Cotton Seed during 1868.

Collector, Shahjehanpore.—Mr. Powell, of the Rosa Factory, reports that he received the seed when the season was far advanced, and at a time of continued drought. The seed was sown—

Some in the garden. Soil composed of good mould, yearly enriched by fresh stable manure.

Some in an open khet. Stiff soil, composed of clay and sand.

Some in a small plot of } Light soil, manured with
ground near the garden. } stable manure and wood-ash.

The garden soil gave plenty of wood, but matured no pods.

The stiff land did not bring the plants to maturity.

The small patch near the garden yielded stem about two feet high, and an abundance of pods.

Cotton far superior to the cotton of the district. Return per acre would be much the same as the yield from the ordinary crop grown.

Mr. Gardener, of the Mewnah Factory, reports that the seed came too late in the season. Shall be glad to give it a fair trial if the seed could be got in good time—*i. e.*, not later than the end of May.

Collector, Banda.—The yield from the Hingunghât cotton seed bears favourable comparison with that from country cotton seed. The staple of the Hingunghât cotton is finer and brighter than that of the country cotton, and the average out-turn of cleaned cotton per acre of the former is 24 seers, 5 chittacks; and of the latter, 15 seers, 13 chittacks. The crop from the Hingunghât cotton seed, however, had the advantage of irrigation.

The proportion of seed to cotton was the same in the yield from the Hingunghât as from country seed—*viz.*, 1 seer of cotton to every two seers of seed.

Commissioner, Meerut, No. 271, dated 29th March, 1869. } *Dehra Doon, Sheharunpore.*
 } --The seed was received too
 } late for sowing.

Moozuffurnuggur.—Five seers of seed were sown in 1 beegah, 13 biswas pucca of canal-irrigated land. The land was watered once, and then ploughed five times, and a dressing of manure given. The seed was sown on the 30th June and 2nd July, in ridges at intervals of two feet. It was watered one week after it was sown, and again three times at intervals. It was weeded four times. In the first month the plants attained a height of 9 inches, in the third month 2 feet, and at the end of October, 5 feet. The yield in clean cotton was 5 lbs., and in seed 11 lbs. The smallness of the out-turn is explained by the seed having arrived too late. It should have been in the ground by the beginning of June, whereas it did not arrive till the 22nd of that month. In October, cotton plants of all descriptions were attacked by an insect which damaged the buds. The past year's experiments must not therefore be taken as a criterion. The Collector states that the fibre is far superior to the country cotton, and is much admired by the cultivators. Specimens of the seed and cleaned and uncleaned cotton accompany Commissioner's Report.

Meerut.—The Collector received the seed too late to sow in 1868, and has stored it carefully for trial next year. The result of the experiment made by Mr. J. Michel, of the Dasnah Factory, with some seed sent to him direct by the Board was not satisfactory. Mr. Michel reports that the greater portion of the first lot of flowers dropped off without forming the bolls. Some few did, but fell off after a few days. All the after-flowers remained on, and the plants produced cotton till the end of November, in which month the bolls were very much smaller. The heaviest of the bolls were not a bit larger than those of the country cotton, though of a longer staple and much more silky in feel and appearance. A great portion of the bolls were attacked by a small red worm, a quarter of an inch long, which eats through the cotton into the bud, staining the cotton a dirty reddish colour. The Collector has seen the cotton produced, and thinks it is very silky and of superior length of staple. He adds that no importance must be attached to the results of the first trials,

and that another season's experience will give a better chance of success.

Boolundshuhur.—Five seers of the seed were sown at Secundrabad close to the Tehseelee in one acre of fair "Bara" land, and 5 seers in one acre of land in the experimental garden in Boolundshuhur. Five maunds of uncleaned cotton were gathered at Secundrabad, and only 2 maunds, 13 seers at Boolundshuhur. The out-turn of clean cotton in both cases comes to close upon a quarter of the weight of uncleaned cotton. The smallness of the out-turn in the Boolundshuhur garden is attributable probably to the land being too much shaded. The Collector of Allygurh transferred the seed sent to him by the Board to the Collector of Agra.

Superintendent, Botanical Garden, Seharunpore.—Two seers and two chittacks of the seed were sown in 3 beegahs, 12 biswas of rather light and slightly sandy land.

The yield was 70 lbs., 10 oz. in² uncleaned cotton, and 15 lbs., 4 oz. in cleaned cotton. Samples of both are submitted. The quality is good, the fibre being longer, softer and thinner than that of country cotton. The experiment was not a fair one, as the seed arrived too late.

Mr. A. P. Webb, Meerut.—Mr. Webb reports on *Dharwar* Cotton. It is presumed this is a mistake, as the Board supplied him with *Hingunghât* cotton seed. Under this presumption an abstract of his letter is given here, the word *Hingunghât* being substituted for *Dharwar*. Mr. Webb sowed equal areas of *Hingunghât* and ordinary cotton on contiguous plots, and in soil of the same character.

The *Hingunghât* received one watering more than the country seed. Both suffered from the subsequent drought, but the *Hingunghât* was almost totally destroyed. The proportion of seed to cotton was greater in the *Hingunghât* than in the country, quantity for quantity; in the *Hingunghât* from 45 to nearly 50 per cent., in the country from 35 to 40 per cent. As usual, the pods ripened quicker in the country cotton. Mr. Webb found this same delay in ripening in 1864 with New Orleans cotton seed sent him by Dr. Cannon from Lucknow.

He adds: "I cannot concede that the unlooked-for interposition of drought interfered with the general results of my experiment. The object was to ascertain, under given equal conditions of soil and cultivation, &c., the comparative value of two descriptions of cotton, and the Hingunghât has failed."

Collector of Jounpore.—States that the whole out-turn from the Hingunghât seed sown last year was 4 maunds, 20 seers of cotton in seed, from which the yield of cleaned cotton was 1 maund, 10 chittacks. The yield was good in comparison with that of country cotton.

Collector of Mirzapore.—States that he has submitted his report through Commissioner.

Collectors, Moradabad and Budaon.—No experiment was made, as the seed arrived too late. It has been kept for experiment next year.

Collector, Bareilly.—The experiment was carried out in four different places.

In the public garden at Bareilly, 4 chittacks of seed were sown in one beegah of light, loose soil, slightly covered with sand. The seed was sown on 26th September. Most of it germinated and came up well, but on the 7th, 8th and 9th January, 1869, 70 per cent. of the plants were frost-bitten. Those that survived are nine and eleven inches high, and are beginning to flower.

The Revd. Mr. Thomas sowed some seed (quantity not stated) in cultivated garden soil, but owing to very heavy and early frost the plants did not come to maturity.

The Tehseeldar of Buheree sowed $\frac{1}{2}$ seer of seed in 8 biswas of "Domut" soil. It germinated, but was destroyed by frost.

The Tehseeldar of Pilibheet sowed 1 seer of seed in 1 beegah of "Domut" soil. He obtained 14 seers of uncleaned cotton. He has given no return of the yield in cleaned cotton, but has been called upon to do so.

Collector of Agra.—States that the season was much against the success of the experiment, and excepting in the public gardens, his own garden and in a plot of the Sowad Shahar

84 EXPERIMENTS WITH HINGUNGHAT COTTON SEED IN 1868.

Mehal, where there were facilities for irrigation, the sowings made by zemindars were destroyed by the drought.

The Collector forwards samples of the cotton in seed and cleaned, with Mr. Haworth's opinion. Mr. Haworth reports very favourably of the Hingunghat cotton, and gives it the preference over New Orleans cotton.

Collector of Bijnour.—No experiment was made, as the seed arrived in August, much too late for sowing.

Collector of Etawah.—Ten seers of seed were sown in 10 beegahs of "Burrooa Chahee" land, at a cost of Rs. 41-0-8, as follows:—

Compensation for value of standing crop, Rs.	3	0	0
Ploughing	5	0	0
Sowing	3	0	0
Irrigation	17	4	0
Weeding	6	4	0
Land Rent	6	8	8
	<hr/>		
	41	0	8
Market value of three maunds,	Rs. 15	0	0
	<hr/>		
Loss,	Rs. 26	0	8
	<hr/>		

In spite of every effort to preserve the crop, want of rain injuriously affected its growth, and the experiment proved a total failure.

Deputy Commissioner, Jhansie.—Of the ten seers of seed received by him, the Deputy Commissioner sent 5 seers to Mr. Sturt, Assistant Commissioner, for trial in the Nursery Garden at Mow, and 5 seers to Doctor Tressider for cultivation in the Jail garden.

The fate of the seed sent to Doctor Tressider cannot be ascertained, as that officer fell ill, and was obliged to go to England.

Mr. Sturt reports that the plants came up well, but were stunted, and ran to pod too early from want of rain. The description of cotton was in no way better than that ordinarily grown in the district.

Collector, Mynpoory.—Of the ten seers of seed which he received the Collector sent $2\frac{1}{2}$ seers to Doctor Tyler, and distributed $1\frac{1}{2}$ seers to each of the five Tehseeldars of his district. The Tehseeldar of Shekoabad, the only one who has submitted a report, states that, with the exception of $\frac{1}{4}$ seer of seed sown in 5 biswas of land which produced 5 seers of good cotton, all the rest dried up and came to nothing.

Doctor Tyler reports that he sowed the seed in the middle of July, which was much too late. The crop suffered subsequently from drought, and the out-turn was far short of what he expected. Doctor Tyler is of opinion that all foreign cotton should be sown in or about April, and reared by well water, so that with the rains it should mature, and be flourishing and fructifying by early spring. He encloses a report by the Agri-Horticultural Society of Calcutta on samples of Hingunghat and Sea Island cotton.

Muttra.—The experiment was undertaken by the following persons:—Mr. Blewitt, Stolea; Nuthoo Lall, Sahar; Boodh Singh, Omergurh; Sirdar Ally, Hyatpore; Jankee Pershad, Royah; Goolab Singh, Sooray; Pirthee Singh; Manjee Lall; Irshad Ally Khan; Dowlut Singh; Kullian Singh; Government Garden.

Boodh Singh of Omergurh sowed $1\frac{1}{2}$ seers of seed in 13 biswas of "Barah" land. The crop yielded 21 seers in uncleaned, and 5 seers, 4 chittacks in cleaned cotton.

Pirthee Singh sowed 2 seers of seed in 16 beegahs, 10 biswas of "Chicknata Moujah" land, and obtained a yield of 1 maund, 10 seers in uncleaned, and $16\frac{1}{2}$ seers in cleaned cotton.

Irshad Ally sowed some seed in "Bhoor Barah" land, which yielded 1 seer of kupas and 3 chittacks of cleaned cotton.

These are the only results given. The experiment was a total failure in all the other cases, owing chiefly to late sowing and want of rain.

Furruckabad.—2 lbs. of seed were sown in $2\frac{3}{4}$ pucca biswas of "Domut" land, well manured, in the District Jail. The produce obtained was 67 lbs., 4oz. of uncleaned, and 18 lbs. of cleaned cotton.

In the Central Jail, $4\frac{1}{2}$ lbs. seed were sown in 10 pucca biswas of "Domut" land, not manured, and yielded 28 lbs. uncleaned and 9 lbs. cleaned cotton.

Mr. Elliott sowed some seed in 1 biswa of land in his own garden, and obtained a yield of 24 lbs., 6 oz. of uncleaned, and 5 lbs., 6 oz. of cleaned cotton.

The seed sown in the public garden entirely failed.

Azingurh.—The experiment was tried by Mr. Cooke of Doobaree, Mr. Dunne of Shumshabad, and by the Secretary, Public Garden.

Mr. Cooke reports that owing to the drought the plant was attacked by small caterpillars, which completely destroyed the blossoms as they appeared, and consequently the yield was nothing at all.

Mr. Dunne sowed 8 lbs. of seed in 1 beegah, 14 biswas of sandy land, and obtained 135 lbs. of uncleaned, and $30\frac{1}{2}$ lbs. of cleaned cotton. Mr. Dunne says that he considers the cotton produced inferior to the ordinary country cotton, as it is shorter in staple, whilst at the same time the yield is no more than usual, through it requires more than the ordinary labour.

The Collector adds that Azimgurh is not a cotton-growing district, and he agrees with Mr. Dunne that any further experiments are useless.

In the Public Garden, 1 seer, 9 chittacks of seed were sown in three fields, containing 10 biswas of light, alluvial, well-manured land. The produce obtained was 116 lbs. uncleaned, and $23\frac{3}{4}$ lbs. cleaned cotton.

Benares.—Baboo Shiva Pershad sowed 4 seers of seed in 1 beegah, 10 biswas of "Bulwa" land; but the experiment turned out a total failure in consequence of the heavy rain which fell immediately after the seed was sown.

The result of the experiment in the Public Garden is as follows :—

$3\frac{3}{4}$ seers of seed were sown in 2 biswas garden land, 1st quality.

19	ditto	ditto,	2nd quality.
18	ditto	ditto,	3rd quality.

The yield obtained was 10 lbs. kupas from 1st quality land.

90 „ „ from 2nd ditto ditto.

60 „ „ from 3rd ditto ditto.

136 lbs. kupas yielded 32 lbs. cleaned cotton. The cotton is cleaner and more glossy and possesses finer fibres than country cotton.

Baboo Doorga Pershad sowed three seers of seed in 15 biswas of "Matyar" land in Mouzah Imlia, Pergunnah Kutehur, and 2 seers in 10 biswas of the same description of land in Mouzah Itwa, Pergunnah Sheopore. The latter entirely failed. The crop in Mouzah Imlia yielded 140 lbs. in kupas and 28 lbs. in cleaned cotton. The yield is below that of country seed, but the cotton is cleaner, the fibres are finer, and the seeds are smaller and less in number than in the country cotton. In 5 seers of Hingunghât kupas there were 4 seers of seed; while in the same quantity of Munooa (country) kupas there are usually $4\frac{1}{2}$ seers of seed.

Mirzapore.—The experiment was tried by Mohunt Jairamgir and Buchoo Lall Panray, and by Mr. D. C. Halkett in his own garden. In all three instances the out-turn was next to nothing, though what was produced was very fair cotton. The failure is attributed to the lateness of the sowing and the unusual dryness of the season.

Ghazepore.—Owing to drought, the experiment in this district was an entire failure.

Lullutpore.—The result of the experiment tried in this District is not promising.

Mr. Greenwood, Extra Assistant Commissioner, obtained only 5 seers of kupas from $1\frac{1}{2}$ lbs. of seed sown in one-fifth of an acre of loose black "Mar" with a light mixture of sand and manure.

Shewram Dass obtained 2 seers of kupas from 5 lbs. of seed sown in $\frac{1}{4}$ acre of "Domut."

Native Doctor Rambuccus Ram obtained $12\frac{1}{4}$ seers kupas from $4\frac{1}{2}$ lbs. seed. Dr. Dutt was more successful in his experiment. He sowed 5 lbs. of seed in $\frac{1}{2}$ acre of "Domut" land, and obtained a yield of 2 maunds, $33\frac{3}{4}$ seers in kupas, and 24 seers, 1 chittack in cleaned cotton. Dr. Dutt reports

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the cotton produced to be stronger in fibre and more glossy and to make better thread than the ordinary cotton of the district.

Etah.—Five seers of the seed were sown in 1 beegah, 13 biswas of “Domut Khakee.” The produce obtained was 4 maunds, 28 seers of kupas. Five seers of the kupas were cleaned in the Jail, with the following result :—

			Seers.	Chittacks.
Cleaned cotton	...	...	1	5½
Seed	...	...	3	7
Waste	...	...	0	3½
			5	0

In consequence of the drought and the seed being sown too late, quite half the crop was lost. The cotton is much softer and more silky than the ordinary cotton, and longer in the staple. The kupas was sold to Etah Jail at Rs. 5 per maund.

The cost of cultivation was as follows :—

			Rs.	As.	P.
Cost of manuring	...	...	...	1	5 0
Ploughing, &c.,	...	...	...	1	10 0
Weeding	...	...	...	2	11 0
Irrigation	...	...	...	12	9 0
Picking cotton	...	...	...	1	13 0
Rent of land	...	...	...	3	12 3
			23	12	3
Price of 4 maunds, 28 seers, kupas at Rs. 5					
per maund	...	...	...	23	0 0
			Loss Rs.	...	0 12 3

W. C. FLOWDEN,
Secretary.

No. 553A. OF 1869.

*To W. C. Plowden, Esquire,
Secretary, Board of Revenue,
North-Western Provinces.*

Dated Nynsee Tal, the 14th August, 1869.

SIR,

I am directed to acknowledge the receipt of your letters Nos. 812 and 813, dated the 26th ultimo, with which the Board submit reports, for the year 1868, on the experimental cultivation of cotton with exotic and Hingunghât seed.

2. In reply, I am to remark that the experiments in both cases cannot be regarded as yielding any complete or conclusive results, because the supply of seed generally reached these Provinces at too late a date, and the season was also one of exceptional drought and irregularity.

3. In respect of the first point, the Cotton Commissioner of Berar will be addressed as suggested in the 6th paragraph of your letter No. 813, and he will be asked to furnish supplies of seed in future so as to reach the Board not later than the month of May.

4. In regard to the second point, it is quite true, as Mr. Webb remarks, that the hardiness of the species to resist drought and to flourish under adverse seasonal conditions (which are unfortunately of too frequent occurrence in these Provinces,) is one of the elements to be taken into account in judging of the suitability of the seed for naturalization in this quarter of India. But the drought also affected the common cotton plant of the country; and the true mode of comparison, as indicated by the Board, is to sow equal areas with the ordinary and with the experimental seed, in juxta-position, under similar conditions of soil, &c.; and the respective outturn will then give the desired comparison.

5. Some of the reports justify the expectation that the experiments of the coming season may be really favourable, especially the report of Mr. Martin, who appears to have taken much trouble in giving the seed a fair trial.

6. For the next year's returns, the Lieutenant-Governor suggests that the Board might prepare a blank form indicating

the various particulars, such as area sown experimentally with Hingunghât and with ordinary cotton seed; amount of seed in each case; date of sowing; whether irrigated or not; date of flowering and podding; yield in kupas and yield in clean cotton. Attention would thus be turned to each of the points requiring to be reported. This form might also be supplied to the several gentlemen engaged in the experimental cultivation, with the request that they will favour Government by filling up the form with the various information indicated therein.

7. The thanks of Government are due to the several gentlemen who have assisted, and are still assisting, in the experiments.

8. It would be an advantage, I am to observe, if an officer, well acquainted with the habits of the Hingunghât plant and the conditions most favourable to its cultivation, could visit the crop while on the ground. His Honor was in hopes that Mr. Carnac might have found leisure to have inspected the chief cotton-growing districts during the past season; but that gentleman was called off by other engagements. Last year also the Lieutenant-Governor suggested to the Government of India the expediency of securing the services of a special officer for the purpose, but has not yet received any reply. The attention of His Excellency the Governor-General in Council has again been solicited to the subject.

9. The specimens of cotton will be forwarded, with a copy of this letter and of the reports, to the Bengal Chamber of Commerce.

I have, &c.,

R. SIMSON,

Secy. to Govt., N.-W. P.

Art V.

MORTUARY STATISTICS FOR 1868.

No. 144 OF 1869.

*To R. Simson, Esquire,**Secretary to Government,**North-Western Provinces.**Dated Allahabad, the 22nd June, 1869.*

SIR,

I HAVE the honour to forward herewith the Mortuary Registers and Tables of the North-Western Provinces for the year 1868, for submission to Government.

I have, &c.,

C. PLANCH,

Sanitary Commissioner, N.-W. P.

TABLE I.

Deaths in the North-Western Provinces for each of the years from 1865 to 1868.

Year.	Popula- tion.	Deaths.			Deaths in 1,000 liv- ing.
		Males.	Females.	Total.	
1865 ...	29,405,822	335,359	239,774	575,133	19.5
1866 ...	...	193,144	136,932	330,076	10.2
1867 ...	...	212,461	155,419	367,910	12.5
1868 ...	29,588,653	186,312	133,574	319,886	10.8

For the past year the deaths per thousand are so low as to make it impossible the returns can be correct. For 10 persons in a thousand to die in one year, supposing the population to remain stationary, makes the value of life equivalent to 100 years. It can hardly be supposed that any native of India puts his expectancy of life at right high figure of years.

TABLE II.

Classified list of the causes of death in the North-Western Provinces, for the year 1868.

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
CLASS I.				
ZYMOTIC DISEASES.				
<i>Order 1.—Miasmatic Diseases.</i>				
Remittent Fever ...	100,100	71,751	171,851	171,818
Cholera ...	9,548	6,850	16,398	56,867
Small-pox ...	17,821	12,162	29,983	33,879
Dysentery and Diarrhœa ...	12,069	8,611	20,680	22,249
Ague ...	6,471	4,850	11,301	17,420
Whooping Cough ...	4,569	3,214	7,783	8,167
Croup ...	1,908	1,533	3,441	1,379
Rheumatism ...	512	331	843	1,344
Measles ...	69	93	167	1,153
Influenza ...	772	547	1,319	1,091
Boils ...	797	561	1,358	1,064
Typhus Fever ...	776	578	1,354	1,059
Quinsy ...	18	7	25	463
Child-bed fever ...	...	160	160	156
Erysipelas ...	102	75	177	125
Ophthalmia ...	88	65	153	81
Carbuncle ...	...	...	...	79
Diphtheria ...	98	105	203	71
Plague ...	869	609	1,478	48
Mumps ...	16	13	29	24
Scarlet Fever ...	5	5	10	2
Hospital Gangrene ...	...	1	1	...
Total ...	156,608	112,106	268,714	324,039
<i>Order 2.—Etihetic Diseases.</i>				
Leprosy ...	746	313	1,059	667
Syphilis ...	402	103	510	508
Gonorrhœa ...	180	32	212	141
Polypus ...	3	4	7	28
Bubo ...	15	11	26	21
Elephantiasis ...	38	19	57	12
Phymosis ...	22	8	30	11
Orchitis ...	3	...	3	1
Itch ...	...	1	1	1
Stricture Urethræ ...	1	...	1	1
Total ...	1,410	496	1,906	1,391

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
<i>Order 3.—Dietetic Diseases.</i>				
Intemperance ...	21	12	33	664
Opium-eating ...	29	55	84	64
Scurvy ...	22	11	33	42
Total ...	72	78	150	770
<i>Order 4.—Parasitic Diseases.</i>				
Worms in the nose ...	58	99	157	207
Worms (kind not specified),	181	88	269	40
Guinea-worm ...	4	2	6	7
Tape-worm ...	3	...	3	6
Thrush ...	5	4	9	5
Scabies ...	...	...	...	1
Total ...	251	193	444	266
CLASS II.				
CONSTITUTIONAL DISEASES.				
<i>Order 1.—Diathetic Diseases.</i>				
Dropsy ...	762	396	1,158	302
Anæmia ...	28	12	40	191
Gout ...	108	94	202	167
Mortification ...	2	1	3	7
Cancer ...	15	7	22	1
Total ...	915	510	1,425	668
<i>Order 2.—Tubercular Diseases.</i>				
Consumption and Phthisis...	2,129	1,556	3,685	2,210
Tuberculosis ...	193	111	304	67
Scrofula (King's evil) ...	24	6	30	34
Mesenteric disease ...	131	70	201	6
Total ...	2,477	1,743	4,220	2,317

MORTUARY STATISTICS FOR 1868.

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
CLASS III.				
LOCAL DISEASES.				
<i>Order 1.—Diseases of the Nervous System.</i>				
Fits and epilepsy ...	1,066	904	1,970	2,365
Apoplexy ...	469	257	716	960
Paralysis ...	469	275	744	888
Inflammation of the brain,	874	458	1,332	541
Neuralgia ...	176	110	286	239
Madness ...	71	52	123	146
Hysteria ...	247	145	392	120
Lock-Jaw ...	66	32	98	113
Inflammation of the ear ...	64	21	85	52
Convulsions ...	...	1	1	24
St. Vitus' Dance ...	13	2	15	3
Total ...	3,505	2,257	5,762	5,391
<i>Order 2.—Diseases of the Circulatory System.</i>				
Fainting ...	24	14	38	610
Aneurism ...	1	1	2	299
Inflammation of the heart...	169	125	294	60
Broken heart ...	100	33	133	26
Palpitation ...	...	...	...	20
Total ...	594	173	467	1,015
<i>Order 3.—Diseases of the Respiratory System.</i>				
Asthma ...	4,358	3,223	7,581	8,227
Pleurisy ...	267	256	523	769
Inflammation of lungs ...	230	113	343	709
Bronchitis ...	170	159	329	189
Bleeding of nose ...	19	17	36	21
Total ...	5,044	3,768	8,812	9,915

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
<i>Order 4.—Diseases of the Digestive System.</i>				
Colic ...	1,024	570	1,594	1,295
Inflammation of spleen ...	728	532	1,266	800
Inflammation of the liver ...	481	393	874	796
Abdominal dropsy ...	62	29	91	510
Stomatitic ...	116	119	235	145
Constipation ...	137	95	232	106
Piles ...	122	58	180	96
Jaundice ...	100	51	151	89
Indigestion ...	153	84	237	78
Peritonitis ...	167	45	212	21
Fistula ...	3	1	4	14
Vomiting of blood ...	32	3	35	9
Eating mud ...	5	15	20	4
Hernia ...	...	...	...	1
Intussusception of bowels...	189	101	290	1
Total ...	3,379	2,105	5,484	3,965
<i>Order 5.—Diseases of the Urinary System.</i>				
Inflammation of the kidneys,	164	125	289	289
Stone and gravel ...	91	16	107	253
Inflammation of the bladder,	65	14	79	15
Diabetes ...	25	5	30	12
Retention of urine ...	3	...	3	8
Bloody urine ...	5	1	6	6
Total ...	353	161	514	583
<i>Order 6.—Diseases of the Generative System.</i>				
<i>Order 7.—Diseases of the Locomotive System.</i>				
Necrosis ...	8	...	8	3
Inflammation of the bones,	...	...	...	2
Total ...	8	...	8	5

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
<i>Order 8.—Diseases of the Integumentary System.</i>				
Disease of the skin (not specified).	272	215	487	732
Abcess ...	307	186	493	385
Prurigo ...	34	29	63	117
Phlegmon ...	1	2	3	84
Ulcer ...	103	48	151	60
Ring-worm ...	105	64	169	9
Whitlow ...	5	3	8	7
Nettle-rash ...	14	2	16	3
Pemphigus ...	...	1	1	1
Total ...	841	550	1,391	1,398
CLASS IV.				
DEVELOPMENTAL DISEASES.				
<i>Order 1.—Developmental Diseases of Children.</i>				
Premature birth ...	...	2	2	931
Still-born ...	516	499	1,015	742
Teething ...	325	223	548	630
Total ...	841	724	1,565	2,303
<i>Order 2.—Developmental Diseases of Women.</i>				
Child-birth ...	...	481	481	466
Abortion ...	...	152	152	126
Menorrhœgia ...	...	87	87	107
Miscarriage ...	...	35	35	64
Amenorrhœa ...	...	40	40	57
Total ...	...	795	795	820
<i>Order 3.—Developmental Diseases of old people.</i>				
Old Age ...	2,415	1,537	3,952	3,027
Total ...	2,415	1,537	3,952	3,027

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
<i>Order 4.—Diseases of Nutrition.</i>				
Atrophy (includes debility and premature old age).	1,215	1,100	2,315	1,667
Total ...	1,215	1,100	2,315	1,667
CLASS V.				
VIOLENT DEATHS AND DISEASES.				
<i>Order 1.—Accident.</i>				
Drowning ...	1,171	1,071	2,242	2,313
Contusion, crushed by fall- ing walls, roofs, &c.	206	112	318	399
Concussion, fall from trees, &c.	409	44	453	331
Privation ...	215	121	336	295
Burn or scald ...	162	150	312	390
Sun-stroke ...	187	109	296	165
In clearing wells ...	74	89	163	102
Wounds and contusions ...	125	52	177	67
Lightning ...	33	4	37	57
Gunshot wounds ...	6	1	7	8
Hail-stone ...	3	1	4	2
Explosion of powder ...	13	8	21	1
Leech in nose ...	...	...	...	1
Snake-bite ...	828	874	1,702	1,678
Killed by animals ...	293	161	454	436
Hydrophobia ...	128	62	190	...
Accidents not specified ...	814	628	1,442	1,578
Total ...	4,667	3,487	8,154	7,893
<i>Order 2.—Battle.</i>				
<i>Order 3.—Homicide.</i>				
Murder ...	98	19	117	63
Killed in an affray ...	21	...	21	49
Poisoning ...	12	13	25	45
By violence ...	26	2	28	12
Killed by thieves ...	5	4	9	10
Litto in dacoity ...	3	1	4	5
Strangled ...	9	2	11	5
Killed while stealing ...	...	...	...	2
Killed by madmen ...	...	...	...	1
Total ...	174	41	215	192

Causes.	Males.	Females.	Total of 1868.	Total of 1867.
<i>Order 4.—Suicide.</i>				
Cause not specified ...	48	34	82	92
Drowning ...	7	16	23	73
Hanging ...	7	19	26	44
Burning ...	...	...	...	17
Poisoning ...	1	3	4	4
Incised wounds ...	1	...	1	2
Total ...	61	72	133	232
<i>Order 5.—Execution.</i>				
Hanging ...	32	14	46	4
Total ...	32	14	46	4
Deaths reported without specified cause	1,747	1,664	3,411	249
Grand Total ...	186,312	133,574	319,886	367,910

By reference to Table II. it will be seen that deaths from Order I. of zymotic disease show a total of 268,714, the deaths from all other causes being only 51,172.

Amongst the causes of death from zymotic disease, the entries most worthy of note are the decrease, in comparison with 1867, of deaths from cholera, and the increase from plague.

The decrease from cholera is due to the fact that in 1868 the disease was nowhere very prevalent above Allahabad; while in 1867 it was epidemic, after the Hurdwar Fair, in many districts north of Allahabad, and, as usual, endemic in the districts which border Bengal Proper.

The increase from plague is due to the entry of 1,444 deaths from that cause in the Moradabad District Returns, 1,390 of which are returned as children of less than 10 years of age. It seems probable that this entry is the result of error, and the subject is under investigation.

The deaths from diseases in Class I., of which a separate account may be given with advantage, are—fever, cholera, small-pox, dysentery, diarrhoea and leprosy.

TABLE III.

Deaths from Fever in the Districts of the North-Western Provinces, for 1868, shewn in comparison with the deaths from the same cause in 1866 and 1867.

Division.	Districts.	Deaths from Fever in			Remarks.
		1868.	1867.	1866.	
Meerut ...	Dehra Doon ...	546	417	506	
	Seharunpore ...	7,210	5,853	5,098	
	Moozuffernuggur, ...	4,131	5,140	4,376	
	Meerut ...	8,425	10,287	6,926	
	Roolundshuhur ...	5,769	4,654	3,636	
	Allypore ...	5,662	6,086	5,673	
Kumaon ...	Kumaon ...	1,466	1,294	no return	
	Gurhwal ...	1,659	1,722	no return	
Rohil-khund.	Bijnour ...	4,160	5,548	4,631	
	Moradabad ...	6,693	4,630	6,481	
	Budaon ...	4,262	4,560	6,290	
	Bareilly ...	6,720	8,916	16,312	
	Shahjehanpore ...	8,126	7,220	13,090	
	Turai ...	1,350	1,602	1,740	
Agra ...	Muttra ...	5,347	6,675	5,194	
	Agra ...	9,769	9,698	7,590	
	Furruckabad ...	4,343	5,525	7,142	
	Mynpoory ...	5,786	5,249	5,983	
	Etawah ...	3,099	4,410	3,247	
	Etah ...	5,178	320	2,573	
Jhansie ...	Jaloun ...	1,176	1,276	1,635	
	Jhansie ...	1,500	1,777	2,050	
	Lullutpore ...	1,608	1,499	2,270	
Allahabad	Cawnpore ...	5,619	8,528	9,412	
	Futtehpore ...	4,125	5,957	5,702	
	Banda ...	6,038	8,394	7,883	
	Allahabad ...	5,449	6,829	6,026	
	Humeerpore ...	3,022	3,206	3,308	
	Jounpore ...	6,024	3,427	4,981	
Benares...	Goruckpore ...	7,581	6,872	5,258	
	Bustee ...	3,106	2,379	2,947	
	Azingurh ...	3,885	2,092	6,693	
	Mirzapore ...	9,062	6,352	6,862	
	Benares ...	8,002	6,111	7,483	
	Ghazeepore ...	7,107	7,639	7,754	
Total ...		173,205	172,144	186,754	

TABLE IV.

Deaths from Cholera in the Districts of the North-Western Provinces for the year 1868, in comparison with the deaths from the same cause in the years 1866 and 1867.

Division.	Districts.	Deaths from Cholera in			Remarks.
		1868.	1867.	1866.	
Meerut ...	Dehra Doon ...	6	887	...	
	Seharanpore ...	138	887	126	
	Moozuffernuggur,	228	2,051	191	
	Meerut ...	318	4,078	719	
	Boolundshuhur ...	116	724	144	
	Allygurh ...	106	1,104	74	
Kumaon,	Kumaon ...	...	1,475	...	
	Gurhwal ...	20	351	...	
Rohil- khund.	Bijnour ...	38	784	87	
	Moradabad ...	138	4,258	252	
	Budaon ...	104	796	127	
	Barilly ...	531	7,828	369	
	Shahjehanpore ...	43	7,831	133	
	Turrai ...	3	622	38	
Agra ...	Muttra ...	123	773	82	
	Agra ...	79	1,457	103	
	Furruckabad ...	102	611	247	
	Mynpoory ...	80	678	116	
	Etawah ...	12	124	62	
	Etah ...	61	1,235	86	
Jhansie ...	Jaloun ...	11	20	66	
	Jhansie ...	...	...	1	
	Lullutpore ...	...	...	23	
Allahabad	Cawnpore ...	67	1,816	235	
	Futtehpore ...	88	711	189	
	Banda ...	...	2,540	58	
	Allahabad ...	638	515	325	
	Humeerpore ...	5	223	3	
	Jounpore ...	863	243	289	
Benares...	Goruckpore ...	3,995	4,991	288	
	Bustee ...	501	5,115	56	
	Azingurh ...	1,406	851	342	
	Mirzapore ...	2,094	437	661	
	Benares ...	1,174	570	1,534	
	Ghazeepore ...	3,305	1,259	1,144	
Total ...		16,398	57,873	8,167	

By this table it may be seen that cholera, though present at some time of the year 1868 in almost every district, became very prevalent only in the districts which border Bengal Proper.

TABLE V.

Deaths from Small-pox in the Districts of the North-Western Provinces for the year 1868, in comparison with the deaths from the same cause in the years 1866 and 1867.

Division.	Districts.	Deaths from Small-pox in			Remarks.
		1867.	1867.	1866.	
Meerut ...	Dehra Doon ...	43	74	38	
	Seharunpore ...	3,171	1,136	10,291	
	Moozuffernugger, ...	2,345	965	6,434	
	Meerut ...	804	914	3,721	
	Boolundshahur ...	1,339	2,856	1,902	
Kumaon,	Allygurh ...	1,938	426	988	
	Kumaon ...	3	46	No return.	
	Gurhwal ...	8	47	Ditto.	
	Bijnour ...	226	4,527	3,886	
Rohil-khund.	Moradabad ...	808	6,011	3,989	
	Budaon ...	387	3,870	1,970	
	Bareilly ...	1,256	4,343	12,772	
	Shahjehanpore ...	231	1,073	11,271	
Agra ...	Turrai ...	1	301	250	
	Muttra ...	993	142	175	
	Agra ...	955	515	77	
	Furruckabad ...	725	393	385	
	Mynpoory ...	901	1,256	395	
	Etawah ...	233	201	118	
Jhansie ...	Etah ...	1,068	513	83	
	Jaloun ...	216	22	107	
	Jhansie ...	104	23	66	
	Lullutpore ...	53	158	511	
Allahabad,	Cawnpore ...	352	1,235	294	
	Futtehpore ...	501	749	412	
	Banda ...	1,179	826	435	
	Allahabad ...	819	721	638	
	Humeerpore ...	1,337	70	82	
Benares ...	Jounpore ...	1,161	1,292	539	
	Goruckpore ...	269	2,494	1,075	
	Bustee ...	1,152	1,065	1,146	
	Azingurh ...	2,043	452	573	
	Mirzapore ...	815	321	645	
	Benares ...	771	599	237	
	Ghazeepore ...	1,716	593	907	
	Total ...	29,983	39,715	66,812	

From the above table it would appear that small-pox was less fatal in last year than in either of the two years which

preceded it. It would indeed appear that 1866 was characterized as a small-pox epidemic year.

The almost entire absence of small-pox in a fatal form in Kumaon and Gurhwal during the past year witnesses to the good results of vaccination, for in those districts only is vaccination very generally and perfectly practised.

TABLE VI.

Deaths from Dysentery and Diarrhœa in the Districts of the North-Western Provinces for the year 1868, in comparison with the deaths from the same cause in the years 1866 and 1867.

Division.	Districts.	Deaths from Dysentery and Diarrhœa in			Remarks.
		1868.	1867.	1866.	
Meerut ...	Dehra Doon ...	191	162	211	
	Seharunpore ...	792	731	542	
	Moozuffernuggur, ...	454	755	192	
	Meerut ...	2,064	1,087	865	
	Boolundshahur ...	1,402	802	519	
Kumaon, ...	Allygurh ...	967	1,023	642	
	Kumaon ...	355	...	...
	Gurhwal ...	...	...	...
	Bijnour ...	512	654	409	
	Moradabad ...	1,955	2,886	1,298	
Rohil-khund.	Budaon ...	660	2,209	221	
	Bareilly ...	1,079	1,006	908	
	Shahjehanpore ...	963	838	994	
	Turrai ...	40	56	91	
	Muttra ...	682	931	398	
Agra ...	Agra ...	1,290	1,394	578	
	Furruckabad ...	845	662	573	
	Mynpoory ...	306	612	163	
	Etawah ...	102	173	39	
	Etah ...	466	606	98	
Jhansie ...	Jaloun ...	233	127	196	
	Jhansie ...	161	195	150	
	Lullatpore ...	311	415	607	
	Cawnpore ...	853	681	1,054	
	Futtehpore ...	459	473	515	
Allahabad,	Banda ...	682	727	543	
	Allahabad ...	132	84	361	
	Humeerpore ...	278	235	253	
	Jounpore ...	634	338	82	
	Goruckpore ...	391	323	74	
Benares ...	Bustee ...	38	...	...
	Azingurh ...	194	240	116	
	Mirzapore ...	395	612	796	
	Benares ...	299	255	401	
	Ghazeepore ...	495	415	301	
	Total ...	20,680	21,907	14,195	

TABLE VII.

Deaths from Leprosy in the Districts of the North-Western Provinces in the year 1868, in comparison with the deaths from the same cause in 1867.

Division.	Districts.	Deaths from Leprosy in						Remarks.
		1868.			1867.			
		Males.	Females.	Total.	Males.	Females.	Total.	
Meerut ...	Dehra Doon ...	10	3	13	21	2	23	
	Seharanpore ...	27	7	34	35	11	46	
	Moozuffernuggur, Meerut ...	20	2	22	17	8	25	
	Meerut ...	187	144	331	53	16	69	
	Boolundshahur ...	36	6	42	28	7	35	
Kumaon,	Allypore ...	15	10	25	20	2	22	
	Kumaon ...	21	30	51	...	...	...
	Gurhwal ...	...	...	...	...	...	...
Rohilkhand.	Bijnour ...	19	1	20	27	5	32	
	Miradabad ...	41	8	49	30	11	41	
	Budaon ...	23	13	36	23	2	25	
	Bareilly ...	17	1	18	43	12	55	
	Shahjehanpore ...	39	4	43	35	5	40	
Agra ...	Teraie ...	...	...	...	1	...	1	
	Muttra ...	17	3	20	9	4	13	
	Agra ...	20	5	25	31	8	39	
	Farruckabad ...	20	12	32	6	1	7	
	Mynpoore ...	14	2	16	11	17	28	
Jhansie ...	Etawah ...	10	...	10	6	3	9	
	Etah ...	11	...	11	20	...	20	
	Jaloun ...	27	15	42	17	10	27	
	Jhansie ...	11	1	12	15	10	25	
	Lullitpore ...	8	2	10	...	...	...
Allahabad,	Cawnpore ...	8	1	9	...	...	...
	Fatehpore ...	12	...	12	6	2	8	
	Banda ...	24	6	30	7	4	11	
	Allahabad ...	5	11	16	3	4	7	
	Humeerpore ...	22	2	24	6	3	9	
Benares,	Jounpore ...	15	8	23	8	2	10	
	Goruckpore ...	8	...	8	3	1	4	
	Bustee ...	...	...	...	...	...	...
	Azimpore ...	5	1	6	6	1	7	
	Mirzapore ...	9	1	10	7	1	8	
	Benares ...	15	1	16	7	1	8	
	Ghazeeppore ...	30	13	43	10	1	11	
Total ...		746	313	1,059	511	154	665	

The table shows a considerable increase of deaths from leprosy in 1868. The great preponderance of deaths of males over females from this cause is noteworthy.

The increase results, I think, from a more careful registration, especially in the Meerut Division.

No separate account of deaths from any disease in Class II., III. and IV. can be given with advantage. In all probability deaths from causes so classed have not been registered with any approach to correctness in any district.

Of deaths in Class V. a separate account of deaths from snake-bite and hydrophobia may well be given, and will appear in the following tables, the districts being arranged in order of importance as regards number of deaths from these causes:—

TABLE VIII.
Deaths from Snake-bites in the Districts of the North-Western Provinces in 1868.

No.	Districts.				Deaths.	Remarks.
1	Bareilly	...	...	...	195	
2	Goruckpore	...	...	...	119	
3	Mirzapore	...	...	...	109	
4	Bijnour	...	...	...	106	
5	Futtehpore	...	...	...	103	
6	Shahjehanpore	...	...	...	101	
7	Moradabad	...	...	...	92	
8	Joynpore	...	...	...	82	
9	Humceerpore	...	...	...	70	
10	Allahabad	...	...	...	65	
11	Cawnpore	...	...	...	59	
12	Benares	...	...	...	51	
13	Jhansie	...	...	...	46	
14	Agra	...	...	...	44	
15	Bustee	...	...	...	43	
16	Ghazeepore	...	...	...	43	
17	Azingurh	...	...	...	37	
18	Boolundshahur	...	...	...	32	
19	Saharunpore	...	...	...	31	
20	Meerut	...	...	...	30	
21	Muttra	...	...	...	29	
22	Allygurh	...	...	...	26	
23	Etawah	...	...	...	26	
24	Etah	...	...	...	26	
25	Mynpoory	...	...	...	25	
26	Gurhwal	...	...	...	21	
27	Lullutpore	...	...	...	19	
28	Kumaon	...	...	...	17	
29	Budaon	...	...	...	14	
30	Furruckabad	...	...	...	13	
31	Moozuffernuggur	...	...	...	10	
32	Dehra Doon	...	...	...	9	
33	Turrai	...	...	...	9	
Total				...	1,702	

TABLE IX.

Deaths from Hydrophobia in the Districts of the North-Western Provinces in 1868.

No.	Districts.			Deaths.	Remarks.
1	Mynpoory	...	...	24	
2	Muttra	...	...	22	
3	Boolundshahur	...	...	21	
4	Allygurh	...	...	16	
5	Furruckabad	...	...	16	
6	Agra	...	...	15	
7	Moozuffernuggur	...	...	14	
8	Etah	...	...	11	
9	Bareilly	...	...	10	
10	Moradabad	...	...	9	
11	Futtehpore	...	...	7	
12	Seharunpore	...	...	6	
13	Aziungurh	...	...	4	
14	Jounpore	...	...	3	
15	Mirzapore	...	...	3	
16	Cawnpore	...	...	3	
17	Jhansie	...	...	2	
18	Bijnour	...	...	1	
19	Turrai	...	...	1	
20	Lullutpore	...	...	1	
21	Goruckpore	...	...	1	
	Total	...	...	190	

SANITARY COMMRS. OFFICE, N.-W. P. : }
Allahabad, the 22nd of June, 1869. }

C. PLANCK,
Sanitary Commr., N.-W. P.

Note.—The detailed Statements, being very bulky, have been omitted.

Art VI.**REPORT ON BHAGEERUTTEE VALLEY FORESTS.**

No. 233A. OF 1869.

*To Colonel C. J. Hodgson, R.E.,**Secretary to Government, N.-W. P., P. W. D.**Dated Camp, the 7th November, 1869.*

THE Conservator has the honour to submit herewith the Map and Valuation Surveys of the Bhageeruttee Forests, which have been prepared by Mr. Grant during the past season. They will give the Government a very accurate idea of these valuable though distant forests, and carry with them the most favourable impression of the zeal and ability with which Mr. Grant has carried out his work in these difficult and distant mountains, to which the Conservator would desire to solicit the favourable attention of Government. The forests of the Jadh Gunga (which joins the Bhageeruttee from Neelung about 8 miles below Gungootree) are not included in this Report, and will be surveyed another year.

2. The Conservator will now append his own remarks on the general condition of the forests, after having been able to spend some time in them. The inspection last year was a very cursory one, but he has not seen reason materially to alter the opinion he then formed.

CHAPTER I.**GENERAL DESCRIPTION.**

3. Just above the point where the Bhageeruttee cuts through the snowy range is situated the village of Jhala. Between this point and Gungootree the valley lies nearly due east and west. It is about 17 miles in length between these points, and this portion of the valley contains the Deodar Forest. Deodar extends for about $2\frac{1}{2}$ miles above Gungootree,

but it is generally stunted. The cheer (*Pinus excelsa*) extends eight miles higher up the valley above Gungootree, and the birch is found in patches up to within half a mile of the glacier. The surveys were only carried up as far as Gungootree.

4. Agreeably to my directions, Mr. Grant divided the forests into convenient blocks, bounded by natural features—the several blocks of forests being called by the names of the *gads* or streams which bound them to the east. The upper survey line was carried along the edge of the forest below the snow; valuation lines, two chains in breadth, were then taken through the forest as far as was possible. These are all indicated in the map. The trees were carefully counted along the lines, distinguishing the sound from the unsound, and averages were then struck for the whole block from the number counted along each survey line, as per its average.

5. A description of each block in succession, commencing from the east along the north bank of the river, and returning up the south bank from the west, will now be given.

6. *Gungootree Block*.—This block extends from the junction of the Jadh Gunga with the Bhageeruttee up to the Gungootree Temple. It is a narrow strip of forest containing somewhat less than 600 acres. The rocks are granite, the hillsides excessively steep, and the river runs nearly the whole distance between perpendicular cliffs from 200 to 500 feet in height below the forest.

7. Some of the finest trees in the whole forest are in this block, and several were measured of 16 feet girth and upwards, and from 100 to 200 feet in height. Those, however, to the east are somewhat stunted and broken, but they are no doubt of great age—the two trees above the temple being supposed to be even 1,500 years old. Above the Jadh Gunga, there is a close forest of young trees springing up in the old cultivation, and generally the proportion of young trees in this portion

of the forest is good, as will be seen by a comparison of the number of 3rd and 4th class to mature trees. This forest has not been much injured by avalanches, but the damage from fire and barking of trees in former times has been considerable. There is a fair quantity of *Pinus excelsa* mixed with the deodar, but no other tree. This block has not been worked, except to a very small extent by Mr. Wilson.

8. *Neelung Block* extends from the Jadh Gunga or Neelung River westwards as far as the Goomgoom River. The characteristics are generally the same as those of the last block. It contains some very fine forests, and a very fair show of young trees in portions of it. But it has suffered terribly from avalanches; and where they have fallen, the forest is utterly destroyed. It is a convenient forest to work, and will yield much good timber.

9. *Goomgoom Block*.—The valley here becomes more open and the forest closer. The trees are generally not of such large size; but a vast proportion have been burnt and killed for the cultivation of the Mukwa people in former years. Though not included in the estimate of the forest, they will yield a quantity of timber for sleepers, independent of the living forest.

10. *Hirseel Block* has been heavily worked by Mr. Wilson in past years, while great numbers of trees were destroyed before his time for cultivation. There is, however, a good deal of timber left available for use.

SOUTH SIDE OF THE RIVER.

11. *Tailgurree Block*.—The same remarks will apply as to the Hirseel Block. There is a fine forest of *Excelsa* and silver-fir mixed with and above the deodar in this block.

12. *Sartee Block*.—The older trees have been generally felled in this block, but there is still a good amount of fine timber (deodar and cheer), while a fine young forest of young deodar and cheer is now coming on. Above the deodar there

is a fine forest of silver-fir (*Webbiana*)—the trees being of enormous size; but they are of great age and generally unsound. Some portions of this block have been dreadfully injured by fire, and numerous fine trees have been destroyed for the temporary cultivation of the Daralee village. The deodar forest west of Daralee is, however, as fine as any I have seen almost anywhere.

13. *Doodoogad Block*.—This large block of forest contains a vast quantity of fine timber. The average of the surveys shows about 25,000 first-class trees, but this is certainly well within the real number. The forest has been considerably worked heretofore in certain parts, but not all over, and it has been much devastated by avalanches. The young forest is particularly good in portions of this block.

14. *Dinargad Block*.—The mountains here are exceedingly precipitous, and the forest very inaccessible. They may, however, be got at in almost every part by light wire-rope bridges across the river from the north side. While an immense amount of valuable timber is available, if only it can be put into the river without being broken to pieces over the precipices. The number of trees shown in the statement is certainly well within the number which exist in the forest.

15. *Kidar Gunga Block*.—This forest is opposite to the Gungootree Temple. The trees are generally stunted, the aspect being cold and enjoying but little sun. Nevertheless, in many places fair young forests may be seen coming on, and on examination it seems better than could be expected in such a situation.

CHAPTER II.

GENERAL CONDITION OF THE FORESTS AT PRESENT.

16. It must be confessed that these forests bear a very desolate appearance on first looking at them, and if their true value be not carefully gone into. The ravages committed by the cultivators in the western portion of the valley, where

thousands upon thousands of dead trees—all killed by fire—disfigure the hill-side in every direction, are barely equalled by the destruction committed by avalanches higher up the valley. Here, in the Neelung, Dinargad, and Doodoogad Blocks, huge lanes may be seen swept clean down the hill-side by avalanches, the whole place strewed right and left with the *debris* of trees, hurled down and broken in pieces, from small saplings up to trees of 12 and 15 feet in girth, in one common destruction. Then, again, the forests having been worked formerly on no regular system, the whole place is strewed with loppings and tops of trees, and half-decayed logs. Added to this, from the height of the mountains the sun disappears entirely from the valley by half-past one or two o'clock in the afternoon, and does not rise till half-past eight in the morning—the frost being exceedingly severe, while cutting winds blow all day long, and snow in this month (November) lies far down the side of the mountain. All this is against natural reproduction, and makes one wonder how such fine trees have ever been produced as are seen here.

17. The rate of growth, however, is no doubt very slow. Although there are exceptions, and specimens of very good growth may be found in the valley, yet, after examining many trees, the Conservator considers that *eight rings per inch* may be taken as a fair average of the rate of growth in these forests, or about 200 years for a tree of two feet in diameter. Many stumps showing an age of upwards of 400 and 500 years have been counted by the Conservator, and one containing about 420 rings measured under 4 feet. In the Hirseel Block one stump was counted of 7 feet diameter, with only 320 rings, and the rate very much varies according to difference of situation; and this happens also where trees are within a short distance of each other in the same block.

PROPOSED IMPROVEMENTS AND PLAN OF WORKING.

18. It is very remarkable that where the forest has been cut down by avalanches, in no case can any young trees be

seen coming up again; the ground becomes covered with scrub-jungle, and the forest disappears.

CHAPTER III.

19. As a large amount of timber must be taken from these forests during the next few years, it becomes important to consider the best plan of working them. After carefully considering the matter, the Conservator feels convinced that the plan of felling in lines, leaving intermediate lines of trees between, will not do here. The shelter of older trees is absolutely necessary to let the young ones take root and obtain shelter in this bitter climate. Indeed, the action of nature with regard to the avalanches, which, as it were, fell regular lines of trees through the forest, seems to show us that such a plan would never answer, as the forest never springs up again in such places. He believes that the best plan will be to take as many of the sound first-class trees out of the forest as it will probably bear without denuding the ground or depriving the young trees of shelter, and then *shut it up absolutely*—not allowing any workman to enter it. For the present, felling will be confined to the four western blocks, and to certain limited portions of those blocks which it may be convenient to work. Moreover, every effort will be made to utilize as many of the dead trees, which exist in great numbers in these four blocks, for sleepers. Many of them are perfectly sound, and the timber seems excellent, and of course thoroughly seasoned.

20. As regards what may be called putting these forests into order, collecting and burning the *debris*, and such like, the Conservator really does not see where he can even begin with profit. To make any perceptible change in this point of view would entail a vast amount of money and much labour, which is difficult to procure. He believes that as regards the future we must insist in clearing up the work as we go on, and little by little remedy the past in the forests in which we may be working.

21. In meanwhile, every pains will be taken to keep the present work straight and as it should be. The villagers are no longer allowed to burn the forests for cultivation or to bark the trees. There is very little sheep-grazing, especially in the upper part of the valley, as the sheep are all constantly employed in journeys to Thibet. Even with all the drawbacks that exist, Government may rest assured that the rent they pay to the Rajah of Tehree for his forests (of which these are only a small portion), even if supplemented by the cost of the Bhageeruttee Valley Road, is well laid out, and that they ought to get a handsome return in the shape of timber for their money.

22. Proposals for the works of preparing the sleepers required for the Delhi Railway are submitted in a separate document.

CHAPTER IV.

CONCLUDING REMARKS.

23. In this Report the Conservator has endeavoured to give a general idea of the condition of the forests, apart from figures, which are contained in the table which is appended, and which gives a carefully compiled statement of the contents of the different blocks of forest at a glance. This seems the most useful way of showing it; and, indeed, from this table the condition of each block of forest can be better told than in the Report. It should be remarked that only first-class cheer trees are counted.

24. In conclusion, he would add a few words on the forests of the Jadh Gunga or Neelung River, on the condition of the Bhageeruttee for floating, and on the progress of the road during the past year.

1st,—As regards the forests of the Neelung Valley, which will be surveyed if possible next season. The deodar extends for about twelve miles up the valley, and contains some very fine trees; but there is very little appearance of young forest. The terribly cold winds which tear up and down this valley:

must, it is supposed, carry away the seed from place to place and prevent it germinating. Nevertheless, a considerable amount of mature timber may be taken from the valley.

25. In the upper portion towards Neelung, the pencil-cedar (*Juniperus excelsa*) is found in considerable abundance; but it has been much cut for fuel by the Tartars, who come to the valley with their sheep; and but few trees of any size exist. Neelung is about 10,000 feet above the sea, and it grows close up to it.

FLOATING IN THE BHAGEERUTTEE.

26. There will be difficulties in regard to this matter which did not strike the Conservator when he made his hurried journey up the valley last year at this time. The upper portion of the gorge is so bad that sleepers could not be floated through it (as he hoped) in the cold weather; in the floods they would be dashed to pieces. Below the gorge, the river, it is believed, presents no difficulties; but perhaps it will be better to launch the logs in the floods, when they will be carried through the gorge, and then they can be cut into sleepers where they are stranded below the gorge, or in the Doon, if they get so far.

27. The Conservator believes that it would not take very much to improve the bed of the river for floating to such an extent that sleepers might easily be floated with safety in the cold weather through the gorge; but without a survey of the river, he does not like to speak positively on this point. Such a survey will be made whenever Mr. O'Callaghan has leisure to attend to it, and then some calculation may be entered into as to the cost of opening the river in the gorge. Perhaps the best plan would be to spend a small sum (say a couple of thousand rupees) every year in blasting away the worst impediments. Below the gorge there is certainly nothing worse in the river than there is between Augustmoonee and the Doon, whence we know that sleepers were floated last March and April with ease and safety.

PROGRESS ON THE ROAD.

28. Much good work has been done between Butwaree and Jhala, through the gorge, by Mr. O'Callaghan. The Melakâ-Choun precipice has now a practicable path along its face, and only one really dangerous place below Sookee remains. This will be examined by the Conservator carefully as he goes down, as he believes it will be better and cheaper to construct two wire-rope bridges and turn the precipice by going along the opposite bank of the river, rather than to attack it direct. Two good wire-rope bridges have been substituted for the two most dangerous of the old temporary bridges, and materials are on the ground for the four remaining ones, which are being put up. When these are completed, access to the forests will be comparatively safe and easy.

29. The Conservator fears, from Lieutenant Gracey's report and others, that he has heard that a good deal of the work on the lower part of the road has fallen in during the last monsoon: probably, however, this will not take much to repair.

30. If the forest road be opened up to Jangla, it can hardly be but that it should be completed eventually to Thibet. From Jangla to the foot of the pass only about six miles present any real difficulty, and the Tartars say that they always ride their *yaks* above Neelung right into Thibet all the way up at present. There can be no doubt the trade in borax and salt alone would repay the completion of this part of the road.

SURVEY STATEMENT OF THE BHAGEERUTTEE FORESTS.

Statement showing Total Number of Trees per Acre, as well as per Block, in the Bhageeruttee Forests, as per Valuation Survey : by A. GRANT, ESQ., Forest Department.

Name of Block.	A cres.	TOTAL NUMBER OF TREES PER ACRE.						
		Deodar, 1st Class.		2nd Class.	3rd Class.	4th Class.	Total.	Cheer.
		Sound.	Unsound.					
1. Gungootree Block,	585	13	1	9	19	29½	71½	...
2. Neelung do.,	670	9	1	7	11	12	40	2
3. Goomoom do.,	1,084	7	0½	2	5½	8½	23½	...
4. Hirseel do.,	368	2½	2	1½	4	4	14	4
5. Tailgurree do.,	1,179	1	0½	1	0½	6½	9½	...
6. Sarjee do.,	943	4	0½	2½	1	11½	19½	...
7. Doodoo do.,	3,047	7	1	4½	17	20½	50	17
8. Dinar do.,	3,198	11	7	7	13	26	64	8
9. Kidar Gunga do.,	416	9	1	3½	6½	21½	41½	...
Total,	11,490	63½	14½	37½	67½	189½	333	57½
...								...

crimes form perhaps the most interesting matter of discussion. The high moral tone and practical philosophy of one of the noblest of heathen monarchs are well represented in this relic of the past as the basis of his undying fame, and there is little doubt that a well-executed version in the vernacular of Upper India will find readers and gain increasing popularity.

3. I think a complimentary letter to the Rajah in recognition of his encouragement of literature would be highly valued, and a hundred copies of the work when printed might be bespoken for His Honor's Government, and the Bháshá version asked for. Supposing even the translator, as an Oudh man, came under the conditions of the Notification, the question of reward is, I think, affected by his relation to the Rajah as patron, with which His Honor might not care to seem to interfere.

M. KEMPSON,

Director of Public Instruction, N.-W. P.

Letter of SIR WILLIAM MUIR, Lieutenant-Governor, North-Western Provinces, to Maharajah of Bulrampore, K. C. S. I., dated 27th July, 1869.

SIR,—The receipt of a translation in Urdú of the Persian work *Touqiat-i-Kisra*, executed under your directions by Aqa Hasan, *alias* Meeran Sahib, of Lucknow, has afforded me much pleasure and gratification.

Your enlightened endeavours to promote the interests of the vernacular literature, both in Urdú and Hindí, are worthy of all praise; and I look on these efforts as quite at one with those which the Government of the North-Western Provinces has at heart. I heartily encourage and applaud you in this good undertaking.

This Government will subscribe for one hundred copies of the Urdú translation when printed, and I shall be happy to see the Bháshá version when ready.

I am, &c., &c.,

W. MUIR,

Lieut.-Govr., N.-W. P.

MEMORANDUM.

(1.) Fisanah-i-Makul	... 138 pages.	{ Three Urdu manuscripts by Syud Gholam Hyder of Jais, Oudh.
(2.) Sair-i-Makbul	... 239 „	
(3.) Ainah-i-Akul	... 193 „	

1. The first two of these volumes are very dreary reading. The author has no data but the names of places marked in his maps, no general information, no literary skill, no humour, and little power of reflection. He has the art of prosing on interminably like a professional story-teller, regardless of inconsistencies and repetitions; and the commercial gentlemen who do the travelling are not 'characters.' They suffer shipwreck over and over again, and are constantly in trouble, but are rarely equal to the emergency. Their hair stands on end, their liver becomes water, or they become *be hosh*. One is perpetually reminded of the Bengali policeman, who was reproached for not seizing a thief, and said—"Huzoor, with a sword in one hand, and a shield in the other, what *could* I do?" All the minor incidents are described with tedious minuteness, with the obvious intention of spinning out the narrative; but the cities visited are left undescribed, except in terms which would apply pretty much to all alike. They furnish so many indications of the traveller's route, and that is all.

2. The following gives a detailed notice of the contents of the volumes :—

Fisanah-i-Makul.—In the English preface, placed at the end of this tale, the author states that his intention is to condemn polygamy and domestic extravagance, and recommend female education. I cannot say that he has succeeded. Concubinage is treated in the beginning of the story as a concomitant circumstance of polygamy, and no comment is made by the author in the way of approval or disapproval. Riches are shown to be of uncertain tenure, but the chief movers in the story are merchants, and their object in life is to get rich. Female education is recommended in the character

of the only female of importance in the volume, Husnara, whose cleverness gave her a good husband, and enabled her to save the life of the reigning monarch. A merchant prince of Persia has three children,—one legitimate, of the name of Bahram, who is spoiled in his infancy; and the other two, brother and sister, by a concubine, who is driven away by the wife's jealousy, and brings up her children at Damascus. Mohsin, the son, becomes his father's agent there; but when the ill-conditioned Bahram succeeds to the estate he is turned out, and, leaving his mother and sister at Damascus, travels in search of employment to Bussorah; and from thence, as the factor of a rich merchant, to Egypt and Asia Minor. Between Aleppo and Moussel he is plundered by robbers and left half dead, but makes his way to Bagdad, where he becomes known to the Caliph. A curious digression occurs here in the recital by Mohsin of the history of Arabia, and the Arab conquests in Spain. He rejoins his master in Egypt, and makes voyages on his behalf in the Mediterranean and by Gibraltar to the Canary Isles. Here he suffers shipwreck and is captured by savages, and carried by them into the interior. He wins the affections of the people by teaching them to carve in ivory, and when he has leave to go is followed by two boys, Mahmud and Masaud, with whom he passes through Sego and Timbuctoo in the direction of Abyssinia. At page 88 there is a curious digression on the decline of Islam, in the form of a lecture for the benefit of the two lads, who are supposed to know Arabic. They meet with sundry adventures, and see a giraffe, which is described as a beautiful camel, with a face like a horse's, and with branches on its head; but are eventually taken captive by the savages, and sold as slaves. A Mahomedan merchant redeems them, and they settle with him at Baboorah. Here Mohsin becomes famous for making saddles. The merchant takes them thence to India, and they travel up country from Surat to Canouj, and through the Punjab to Ghazni. Here, as elsewhere, no attempt is made to describe the country or its inhabitants; but, from what is said about the disunited nature of the Hindoo Raj and the

fact that Mahmud of Ghazni is represented as preparing to invade India, an indication is gathered of the time of the tale. Mohsin thence finds his way to Bagdad, and becomes Vizier to the Caliph. At Bagdad, Bahram turns up as a distressed vagabond, having ruined his inheritance, and thus afforded an example of the evil effects of bad training in early life. He is recognised by his half-brother Mohsin, the Vizier, and tells his story. The mother of Mohsin had been dead some years ago, and his sister Husnara had been married, but where or to whom was unknown. He goes in search of her, and finds her in prosperous circumstances at Isfahan. She tells her story, and finally moves to Bagdad to be near her brother. The obvious defects of the tale, which is dedicated to the late Governor-General, are—its rambling unconnected manner; its unreality, from the author's utter ignorance of the scenes in which he places his hero; and its remoteness from present time. There are two maps and a picture. The former are outlined from English maps, and are intended for reference in connection with the narrative, but do not add to its reality.

3. The *Sair-i-Malbul* is dedicated to the present Governor-General, and is intended, according to the English preface, to counteract the repugnance felt by the inhabitants of this country to Geography by placing before them attractive accounts of "the position, natural features and social and political condition" of distant countries. The author has failed signally in carrying out this worthy aim. Their position in the maps is all that he can claim to know of the places visited; and, even supposing he had informed himself of even one of the above-mentioned particulars, the fact of his placing the time of the travels two centuries back would have rendered his information as to present status worthless. He has, of course, taken this method to avoid the trouble of collecting information, and the consequence is that the travels are as unreal as they can well be. The author's next object, according to the English preface, is to encourage a taste for travel. Here again he defeats his own object by describing the hard-

ships only. The merchant whose adventures are related never leaves harbour without feeling nervous and unhappy, which is natural enough, as he is invariably shipwrecked and cast on desert islands, and captured by savages. No native would read the book without congratulating himself on having his *roti-khana* quietly at home. Travelling by sea is represented as attended with great danger and distress, and no particulars whatever are given as to the mode of navigation or the arrangement for the comfort of passengers, simply because the author knows nothing about them.

The chief traveller in the tale is a young merchant named **Agha Makbul**. He is a Persian by birth, and, on the mention of Persia, the author gives a map and names the boundaries of the country. He starts from Bussorah on his travels on January 1st, 1664, and visits Mecca and Medina,—no description being attempted. He then goes to Damascus and Jerusalem, which latter is described as follows:—“The temple built by Solomon is situated in this city. In former times it will have been a very fine town really. Notwithstanding its present desolate condition it is inhabited for a circuit of $2\frac{1}{2}$ miles; and though the streets are not broad, they are very straight, with beautiful and exceedingly well-built houses; and if the lower floors are as dark as a prison from the want of windows, yet better built houses are rarely seen. The city is built on a hill, with steps on the west, east and south, and a dangerous jungle to the north, which stretches to the hills.” This is a fair average specimen of the author’s descriptions, which are evidently based on very slender information indeed, and are eked out by the introduction of balanced clauses, as seen in the ‘notwithstanding,’ ‘though’ and ‘if’ of the above short extract. The merchant is cheated by a friend at Jerusalem, and eventually gets back to Persia a ruined man. In 1667 he travels to Egypt as factor to a wealthy Mahomedan merchant, and visits Thebes, Cairo, and the Pyramids, &c., and Paliopolis (*sic*) “where the Phoenix used to be buried;” کہ عثقا اِس شہر میں دن ہوا کرتا تھا

The Pyramids are described as large *minars*, broad below and thin above, and are evidently less interesting than the Phœnix, to which several lines are devoted. The traveller after this voyages in the Mediterranean and sees Venice, Geneva, Sicily, Mount Etna, &c., of which an eruption is described; but is shipwrecked and captured by pirates. Pages 49-69 contain the story of a Turkish fellow-prisoner called Yusuf, who visited America in company with an Englishman called Mr. Edward, and married a Miss Brown at New York, but had been captured by rovers on a visit to Europe. The discovery of America by Columbus is an episode in this narrative. Agha Makbul and Yusuf are ransomed at Morocco, and go to Tripoli, whence the former proceeds to Smyrna (on 23th September, 1669), with the intention of making his way home, but is again shipwrecked and cast ashore on a desert island, where he leads a Robinson Crusoe life for a few years, the details of which form the chief episode in the book, from page 76 to page 117. After 25 years' absence he returns home wiser perhaps, but not richer. His parents die of joy at seeing him, and he takes to himself a wife, but soon starts on his travels again, visiting Aden, Isfahan, Bukhara, Tashkund, the Ural Mountains, Astrakhan, China, Siberia, Madagascar, &c. He falls into captivity among the Tatars, and escapes by way of Russia, where he visits a monastery. The descriptions of all these places are general, and no particular information is given. The account of Madagascar, for instance, might refer just as well to the Mauritius or Jamaica.

4. The *Ainah-i-Akul* is dedicated to the Lieutenant-Governor, North-Western Provinces, and is intended to recommend the cause of female education. It is decidedly the best of the series. The actors are of the merchant class, and the period is indefinite and the whole is unreal, but the matter is more instructive, and the object is better kept in view. This will be seen from the particulars which follow. A merchant of Egypt dies, leaving two sons and a daughter, Kasim, Hashim and Ruhafza. The sons divide the inheritance, and

reside at the chief head-quarters of their father's trade system, Tripoli and Seota, and the sister is married to a Syrian Prince. The plot is simple. After a sufficient period has elapsed for the adventures of the three chief personages, they meet by chance at Bagdad, and relate them. Hashim recounts his travels first—pages 8-30. His adventures and those of his brother are similar to those of the merchants of the two tales already reviewed, but there is a great improvement in the introduction by the author of incidents intended to convey a moral lesson. For instance, on Hashim's first journey to China, he tells a story of a burning ship, and the love exhibited by a mother for her son during the catastrophe. The love of children for their parents among the Chinese is the subject of an illustration drawn from his experience at Canton; and so, at Constantinople, the love of a wife for her husband is the subject of a story connected with the visit there. Kasim, as the less wise and prudent of the two brothers, falls into various misfortunes, and becomes a slave. This introduces a series of reflections on the duty of kindness to servants. Ruhafza's story is the chief part of the book—from page 39 to the end. Grief for her father, and ignorance of the fate of her brothers, produced a species of insanity, which her husband had endeavoured to alleviate by various remedies. She is at last cured by a wonderful old woman, by name Hajira, who comes with her family of daughters and nieces, all of whom she has herself educated, to Bagdad. A kind of female durbar is held by Ruhafza, and Hajira tells her history, which is intended as a description of the advantages of female education. After this her young ladies, to the number of twenty, display their talents in turn by disquisitions on the evils of pride, avarice, envy, miserliness, anger, lying, discontentment, &c., illustrated by anecdotes borrowed from their experience of books. The accounts at pages 59, 61, 63 of two sisters in Germany, Alexander the Great, and Attalus, the scourge of God, (آمر خدا) are taken from English books. At page 131 Ruhafza reviews the whole. The old lady Hajira then lectures on female

education; and from page 161 onwards the establishment of a girls' school and the examination of the scholars are described.

5. Judged by an European standard of literary criticism, the two first volumes, as books of travel, are so much waste paper; for not only are the contents valueless but the style is poor. There are several unnecessary Arabic words and phrases, such, for example, as *اثنائه* for *اسباب* *مع الكثير بين العوام* &c., and the rules of Urdu Grammar are neglected. This is admitted by the author in his Urdu preface to Volume II., where he says he has purposely disregarded Grammar from the beginning to the end of the book. *میں نے ابتدا سے انتہا تک لحاظ صرف و نحو کا نہیں کیا ہے*. At the same time he is fluent and idiomatic, and I can easily imagine that a circle of uncritical native listeners would be highly amused by the narrative. He has kept clear of absurdities and improprieties, and has certainly added three volumes of harmless light reading to the meagre vernacular literature of the day. The absence of manly tone and sentiment has been noticed in paragraph 1; but the phrases used are those constantly employed by the natives of India in every emergency, and certainly add to the naturalness of the tale. Volume III. has been noticed above as superior to the other two in directness of application and moral sentiment, and will be very useful as a prize book in girls' schools.

6. The author is entitled to credit for his efforts, and with practice might produce something more worthy of the name of a literary success, particularly if he treats of matters which fall within his own observation and experience in India, instead of carrying his readers to Konk and Timbuctoo. He should, I think, be thanked for his labours, and the general objections might be pointed out to him for future guidance. It would also encourage him to promise purchase of 300 or 400 copies of each of the works when published, and perhaps His Honor might also think it advisable to reward him for the third volume, *viz.*, the

Ainah-i-Makul, as the best of the three, with a present of Rs. 200 or so.

M. KEMPSON,
Director of P. I., N.-W. P.

No. 2459A.

To M. Kempson, Esquire,
Director of Public Instruction,
North-Western Provinces.

Dated Allahabad, the 17th November, 1869.

SIR,

I am directed to acknowledge the receipt of your docket No. 1716, dated the 14th ultimo, with which you submit a memorandum containing your opinion on the three Vernacular books named in the margin, written by Syud Gholam Hyder, Extra Assistant Commissioner, Kheree, and to state that you have very correctly estimated the value of the works.

1. *Fisanah i-Makul.*
Sair-i-Makbul.
Ainah-i-Akul.

2. The Lieutenant-Governor has examined the third work, *Ainah-i-Akul*, and concurs with you that it is the best of the series. Still it must be held defective both in construction and matter, being composed of stories strung together without inherent connection, and not being grounded upon any natural or likely plot, but rather formed on the style of Oriental story-telling.

3. Nevertheless, though not laying claim to a high style of authorship, the work may prove entertaining to native readers; and it might be useful at least as a prize book, especially in the more advanced Female Schools. The treatise is moral and beneficial in its bearing, and entirely free from the frivolities and improprieties of ordinary Oriental tales.

4. Under these circumstances, His Honor authorises you to order 500 copies of the work, if the author should print and publish it at a reasonable price.

5. The Lieutenant-Governor also thinks that Syud Gholam Hyder's labours are deserving of some recognition under the

Notification of this Government, No. 791A., dated the 20th August, 1868. It is true that they have not taken quite the direction, or answered the higher requirements, contemplated by Government. Still, as a contribution to Oordoo literature, in the present dearth of moral entertaining and idiomatic works, they are deserving of encouragement and approval.

6. A time-piece may accordingly be presented to Syud Gholam Hyder, which you are authorized to purchase for that purpose.

7. The Chief Commissioner of Oudh will be asked as to the mode in which the present can be most appropriately made over to the Syud.

8. In returning the books, I am to request that the letter from the Secretary to the Chief Commissioner of Oudh, with its enclosure, forwarded to you under cover of endorsement No. 843A., dated the 27th July last, may be transmitted to this office.

I have, &c.,
R. SIMSON,
Secy. to Govt., N.-W. P.

Art. VIII.

**DEODAR FORESTS AT THE HEAD OF JUMNA
AND TONSE RIVERS.**

*Report by Major G. F. Pearson, Conservator of Forests, North-
Western Provinces, dated Camp, the 5th December, 1869.*

To Col. C. J. Hodgson, R.E.,

Secy. to Govt., N.-W. P., P. W. D.

SIR,—I have now the honour to lay before you, for the information of His Honor the Lieutenant-Governor, some account of the deodar localities, not previously described, which lie about the head of the Jumna and Tonse rivers. A rough sketch-map is appended, and by a comparison of it with the atlas-sheet their position will at once be seen.

2. It will be seen that three main ridges spring out of the block of snowy mountains of which Bunderponch is the main feature. The first of these separates the Ganges from the Jumna, of which the last distinctive feature is Nagtiba, opposite Mussoorie; the second range separates the Jumna from the Tonse, and may be said to extend as far as Deobund; and the third separates the Tonse from the Pabur, and, indeed, is a branch of the main range which divides the Sutlej from the group of rivers south of it. All these ranges are well covered with fine forests of firs and oak; but the Ganges and Jumna range is only deodar-bearing in a few special localities; the Jumna and Tonse range only becomes so about its lower extremity near Deobund, where it contains our Jounsar Bawur Forests (already described); but the last or Tonse and Pabur range seems to have deodar as its characteristic tree from the point where vegetation commences below the snow-line. I shall now proceed to describe the deodar localities on these ridges in detail.

3. Commencing from the Ganges, there has been a considerable forest (No. 1) above Barahat, near Sulda, but it was

well worked by Mr. Wilson in former years, and latterly about 1,000 trees, it is said, were cut down shortly before I took charge of the Department. It is now cleared out entirely, except a few young trees which are coming up in places. Near Lisnore (Upreekot), there are two small forests (No. 2), but these are probably too remote from the river to be of any use except for the villagers. About 400 trees were felled three years ago in the lower forest near Kowna, but they are five koss from the Ganges, and it would be impossible to remove the sleepers without doing something to improve the road down to the river. It is doubtful, as there is so little timber available, if sleepers sawed up here would bear this charge in addition to the cost of carrying them to the river; but the subject shall receive my attention, and if possible this timber shall not be wasted.

4. The range above Upreekot contains one of the finest oak (*moroo*) forests which I have seen in the hills. Descending into the valley of the Jumna, there is a small deodar forest above Shalna. It covers about 250 or 300 acres, and being on a moderately-sloping hill-side with a southern aspect, the growth of the trees is exceedingly favourable, and the young trees numerous. Portions of the forest have been much injured by fire in former years, and the greater portion of the mature timber has been felled by the people of the country for house-building; perhaps 1,000 trees may remain fit for timber at the present time. The growth of timber here is fully equal to the best specimens in Jounsar. The care of the forest is entrusted to the *Pudan* of the village, who says he every year takes some precautions against fire. It would be better to make him some small allowance, and hold him practically responsible.

5. South of this there are some small patches of deodar, about the Bonk Peak and Nagtiba Hills, but they are either too far away and too small to be of any practical importance, or else they had better be reserved for the special wants of

Mussoorie. Mr. Scott, of Mussoorie, removed a good quantity of deodar from this part of the range in past years.

6. As regards the capabilities of the Jumna as a floating river, from all that I can learn it is quite free from impediments except for about two miles near Singone, about 20 miles due east of Chukrata, where some not very heavy rocks are found in its bed. The river, however, shall be specially examined and surveyed (if possible) during the present cold season.

7. Crossing the Jumna on to the Kedarkanta ridge, which separates that river from the Tonse, there is (or rather has been) a very fine deodar forest in the Bunnal, a tributary of the Jumna, which joins it just above *Burkot*. This forest (No. 4) extends along the left bank of the Bunnal for about two miles, and may on an average be half a mile in depth. This forest has contained much fine timber in former years, and many very fine trees still remain in it. The growth is quite remarkable, and I have never seen it equalled elsewhere; one stump of nearly eight feet girth showing only a growth of fifty-six years, the rings being perfectly even. But, being situated in the middle of a thickly-populated country where there is but little deodar, it has been terribly cut up by the people for house-building purposes, and there are not, perhaps, more than 2,500 or 3,000 available timber-trees at present in the forest. In some places the trees have been cut down as clean as if they had been mowed; but the growth of young deodar since the very moderate protection that the forest now receives is quite remarkable.

8. There are some small patches (No. 5) of young deodar in the Ramaserai valley, a tributary of the Kamalada, which runs into the Jumna below the Bunnal; but they are of no practical importance, and contain no large trees. I did not visit them, as it would have involved a long trip from the ridge, from which I contented myself with looking at them with a glass. The whole of this valley is richly cultivated,

and bears two crops a year throughout; indeed, it may be called the granary of this part of the hills.

9. The great difficulty with regard to any effective conservation of these Jumna deodar forests will be in respect to the grazing. The immense sums exacted by the Rajah for grazing from the villages near the forests quite precludes the possibility of thinking of compensation, for the forests would not be worth it. The next favourable point is that, where fire has been kept out, the forest is so strong that it keeps down the grass, and the young trees seems very often to spring up readily in the face of all difficulties from grazing; and I believe we must confine our efforts to keeping down the fire, which may reasonably be insisted on.

10. It will be seen that the Jumna contains but little deodar of any sort, but it would be difficult adequately to describe the enormous seas of cheer (*longifolia*) forest which line its bank. In these the trees must be numbered not by thousands but by hundreds of thousands, and many of them are of huge size. Government has with a wise liberality offered a munificent reward for the invention of machinery for the preparation of the *rhea* fibre; and it might, in its own interest, be well worth while, considering the large number of miles of railway—all the property of the State—that before many years will be at work in Upper India, to double or even treble this reward for the invention of a thoroughly-satisfactory process for impregnating, and so preserving from decay, sleepers made of cheer timber; for it is quite certain that the deodar forests will never bear all the strain that will be put on them, besides which they are generally much more remote from the main rivers and much higher up the hillside than the cheer forests.

11. Like the hills of the left bank of the Jumna, those on the left bank of the Tonse are also covered with almost interminable forests of cheer. Higher up the river near

Datmeer, cheel (*excelsa*) takes the place of cheer, but the latter may be considered the predominating tree. The Goroogad, running down to the Tonse from the west of the Kedarnath Peak, is full of an enormous cheer forest.

12. Passing, then, across the Tonse to the range which separates it from the Pabur, we come again into a tract of which the deodar forests are the distinctive feature. The deodar commences north of the Tonse near Gungar, and is scattered all over the range which separates the Tonse from its other main head-stream (the Punch Gunga) which joins it opposite Shankree. The hills here are rocky and precipitous, and the trees are chiefly confined to the small ravines and streams which run down from them to the river. The main blocks of forest extend from just below Gungar to about two miles below (opposite to) Datmeer (No. 6), and on the further side of the range above Leor and opposite Kahsole and Ruksha (No. 7). All this timber would readily come down into the river. I do not think there can be less than 10,000 or 12,000 available trees on this range.

13. As regards the floating capabilities of the Tonse above its junction with the Rupin at Naintwaree, there is certainly very little water in it at the present season, nor in the Punch Gunga, which joins it opposite Shankree; but there is a fall in the river of near 2,500 feet from Datmeer to Naintwaree, or above 100 feet per mile, and the people say that in June or July an enormous torrent comes down both these rivers, and that the logs which Mr. Wilson cut near Datmeer easily came down. The river bed is remarkably free from rocks, and there is no impediment, as far as I could see, except for a short distance above Shankree.

14. Proceeding downwards, there is a considerable amount of deodar on the spur which comes down to the river above the village of Koarbo (No. 8), also in the stream next to it, west of Koarbo (No. 9), all of which would readily work down into the river. These may be estimated at least at 3,000 trees.

15. We now come to the Rupin and its forests. This river joins the Tonse at Naintwaree. On its left bank, just above the junction, there is a block of deodar forest above the village of Bitree, while the whole of the north bank of the Kharoor (a tributary of the Rupin) appeared to me to be lined with deodar forests (No. 12), and I was told by the people that the forest was all deodar. There must be at least 6,000 trees in these three blocks.

16. Passing to the right bank of the Rupin, there is considerable scattered forest of deodar on the slopes of the Kandighat Hill down to the Tonse (No. 14), and there is a large mixed forest, the lower portion being mainly deodar, while the upper consists of cheel (*excelsa*) and silver-fir, on the heights surrounding and above the village of Narayingaon (No. 13); these blocks may certainly be estimated at 4,000 available trees. It may be mentioned that Mr. Wilson has worked out timber much higher up the Rupin than any of these forests—from those belonging to Bussahir.

17. Passing out of the Rupin round the spur of the Taroo (marked in the map Charoo) Peak, we come to a large basin formed by the streams which run down from that peak and the ridge which joins it to the Lambatach Peak. These are called successively the Salda stream, the Motwargad, the Koneegad, the Chilleegad and the Matakanalla. There is a little deodar under the spurs at the head of the Salda stream (not available). The Motwargad and Koneegad both contain fine deodar forests of considerable extent (No. 15); the trees are very large, but they seem to me rather too remote to be worked with profit. But the people of the villages declared they could easily bring the logs down to the Tonse, and I had not time to examine the ground between, and certainly the hill-side is sufficiently precipitous, and the work all down hill. The Chilleegad (the largest of all these gads) contains a considerable mixture of trees—silver-fir, spruce, oak, and deodar; the deodar being fewest, but very fine trees what there are of

them. The Matakanalla has a fine forest of pure deodar (No. 16), probably workable to the Tonse. These blocks certainly contain 10,000 deodar trees, but probably not above one-third of them could be ever got to the Tonse.

18. It is necessary from this point, on account of the scarps, to ascend to the top of the ridge through a forest, mainly of oaks and silver-fir, when you look down into the Pabur on the other side. Proceeding along the ridge, the point where the road crosses from the Tonse to the Pabur (from Seras to Gokul) is reached. Here commences a noble deodar forest (Nos. 17 and 18) on both sides of the ridge, equal perhaps to the best of our Jounsar Forests. Neither of these forests are entirely pure, but the deodar is mixed chiefly with raiee and silver-fir, and cheel. The forest to the east of the ridge is the finest and purest. Here I measured six trees, quite close together, of the following girths respectively:—

			Ft.	in.	
No. 1,	...	...	15	3	
No. 2,	...	...	16	10	A noble tree, quite perfect.
No. 3,	...	...	11	8	
No. 4,	...	...	13	9	
No. 5,	...	...	12	3	
No. 6,	...	...	17	4	Slightly injured below.

All these trees were much over 100 feet high, and there are many trees like them all over the forest.

19. On the opposite (west) side of the Lambatach Peak are two forests (Nos. 20 and 21), which I saw last year from the opposite side of the Pabur, and appeared to be considerable forests. Proceeding around the Lambatach, there is a considerable amount of deodar (No. 19), mixed with cheel, above the village of Bamsoo in Surass; below this down to the Tonse is cheer (*longifolia*) forest, as, indeed, is the case all along.

20. On the south side of the Lumbatach Hill is Forest No. 22—a forest about three miles long by half a mile deep, full

of noble deodar trees, right over the Tonse. This will be a most valuable addition to our stock of timber.

21. Besides the above, there is the Mundhole Forest (No. 23), west of the Tonse, which has not yet been included in any calculations. This forest is perhaps too high up to work at present, and as the lower part of the valley is full of rice-fields, it will perhaps be as well to reserve it for the present.

22. The forests between the Rupin and the Pabur (Nos. 15 and 22) cannot contain less than 25,000 trees; I am sure of these. One-third, or say 8,000, will certainly be at once available; and, adding all the above blocks together, the Upper Tonse certainly contains not less than 50,000 trees, of which one-third at least, or say 15,000, may be worked out cheaply and easily, as the forests are not too far from the river and overhang it immediately, while the best of the Jounsar Forests are fully from four to twelve miles distant from the river.

23. I feel very glad that I have been enabled to thoroughly examine all this block of forest before I made out the working-plan of the sleeper-work for the Tonse, as it will enable us to remove the sleeper-work for the present out of the immediate neighbourhood of Jeunsar, and obviate the inconvenience of the sleeper-work competing for labour so directly with the Chukrata works, which is a most important point.

24. I propose, then, at once to direct Captain Murray to fell 5,000 trees in Blocks Nos. 6, 8, 9, 10, and 22, and perhaps in Nos. 17, 18, and 23 after more examination of the ground. Mr. Bagshawe may look after this work at once.

25. Captain Murray will also be directed to saw up at once about 2,000 sleepers, to be ready to put into the river in April, when it first rises, when 300 or 400 logs will be also put into the river; and, after an actual experiment, a decision will be finally come to whether the logs should be sawn up into sleepers in the valley or below in the Doon. Experiments will also be made in bringing down both timber and sleepers

from different parts of the forests, as to cost and practicability; also in sawing up, both on the hills and in the river.

26. The above arrangement will enable Captain Murray by degrees to open out the mule-tracks in the Jounsar Forests, and to make slides and otherwise prepare these forests for working hereafter. It is hoped, therefore, that it may meet approval.

27. I believe, from enquiries, that if 15,000 or 20,000 logs can be got down into the river, there would be no difficulty at all in sawing up *a lakh of sleepers per annum* in these forests. I would, therefore, not be in too much of a hurry to commence sawing up too many sleepers before they are wanted, as they are sure to split and deteriorate more or less in a couple of years.

28. Something will have to be done to make the road practicable up the Tonse as a *footpath*; and one or two wire-rope bridges must be put up in places to render the forests more accessible, as the only way at present of crossing the river between Mundhole and Naintwaree is by being slung in a noose under a rope, and being dragged across.

29. As the whole of the forests of deodar north of the Tonse are in the Teercc Rajah's country, Government may be congratulated in having got a much better bargain out of the lease of his forests than has been heretofore supposed.

I have, &c.,

G. F. PEARSON, MAJOR,
Conservator of Forests, N.-W. P.

Reply of Government to Conservator of Forests, North-Western Provinces, dated Allahabad, the 30th December, 1869.

ACKNOWLEDGES Conservator's Report, with map, on the above-noted Forests, and observes that the condition and prospects of these forests is shown to be highly satisfactory.

2. Approves of the proposed removal of the sleeper operations from the Jounsar Forests to those of the Tonse, as well

as the proposals for future operations. An estimate should be sent up of the expenditure desired to be incurred in making a path up the Tonse, including the wire-rope bridges said to be required.

3. With reference to the question of using creosoted cheer sleepers, observes that His Honor is not aware that the method now employed for impregnating timber is not effective, or that there is reason to suppose that cheer, so treated, will not produce durable sleepers; and if this be the case, it would seem to be desirable, as an unlimited supply of this kind of timber is so easily procurable, to at once establish creosoting-works at some convenient point. The proper place at which to carry out this operation for the Rajpootana Railway would seem to be Delhi; to which sleepers cut up at the forest depôts could be floated down the Jumna, or down one or other of the Jumna canals, and, after impregnation, be boated down to Agra. If Conservator, however, has any information or suggestion to offer on this point, he is requested to submit it.

4. With reference to Conservator's proposal to grant a small allowance to the *Pudhan* of the village, to whom the care of the small deodar forest above Shalna is entrusted, intimates that the Lieutenant-Governor concurs in the recommendation of the Conservator, and desires that a definite proposal on the subject may be submitted.

5. Conveys the acknowledgments of Government to the Conservator for the Report submitted by him, which is most interesting, and appears to be (so far as Conservator's opportunities of observation have gone), complete and comprehensive for the part of the country described. The Report and map will be published in the Selections of this Government, and copies sent to the Government of India.

By Order,

C. J. HODGSON, COL., R. E.,
Secy. to Govt., N.-W. P., P. W. D.

3. *Object of Enquiry*.—The enquiry was intended to—

1. Obtain the number of married Rajpoots in each village.
2. Number of married Rajpoots with issue.
3. The issue, male and female, under 6 years of age.
4. The same between 6 and 16 years of age.
5. Of the above, the number married and unmarried.
6. What became of the female children alive at the time of Mr. Moore's census.

4. *Results of Enquiry*.—On the first point the information is incomplete, as in many instances a perfect list, including old residents, could not be obtained. The difference between column 12, Appendix A., and the corresponding column in Mr. Moore's Report (4), is in a great measure to be explained by the fact of the death or dispersion of the male members during the Mutiny, the suspected clans being the most warlike and turbulent in the district.

5. The result of the second, third, fourth, and fifth objects of enquiry has been more satisfactory, as shown by the following table.

The number of girls under 6 years compared with the number of boys of the same age gives:—

Year.	Number of Families.	Boys.	Girls.	Total.	Percentage of Girls.	Percentage of Boys.	Remarks.
1856,	306	136	<i>Raree.</i>	245	44	56	In Unglee 20 villages have been examined which are not found in Mr. Moore's report, and in Kerakut 10; this must be taken into account in comparing the results of the two censuses. They are:—
1866,	366	174	109	304	42	58	
			130				
			<i>Unglee.</i>				
1856,	1,129	462	322	984	32	68	
1866,	1,038	634	519	1,153	44	56	
			<i>Kerakut.</i>				
1856,	1,754	824	214	1,038	20	80	<i>Unglee.</i> Families. Boys. Girls. 129 79 42
1866,	1,817	753	315	1,063	29	71	
							<i>Kerakut.</i> 118 51 30

The number of female children unmarried is very great, considering the strong prejudices all Hindoos have against having their daughters unmarried at a marriageable age.

Out of 964 girls between 1 and 6 years of age, and 260 between 6 and 16, only 232 are married.

The results entered in column 16 of Appendix A. are necessarily imperfect, as all the vernacular records were destroyed during the Mutiny. No check existed beyond the numbers entered in Mr. Moore's Report and the probable age of the girls. This record I have, however, retained as a basis for future action.

6. *Raree*.—In Pergunnah Raree the Doorgbans and Bais clans of Rajpoots preponderate, and have always been noted for practising infanticide. From a comparison of the results of

Burchowlie,
Butaha.
Gourah.
Mampore.
Khunsapore.

my census with that of Mr. Moore, it appears that the proportion between the sexes, except in the villages marginally noted, has improved. I attribute this partly to the fact that the custom of demanding money

Cause of diminution of crime in Raree. for their daughters now almost universally obtains, where formerly the father of the girl had not only to bear the wedding expenses (no small item), but also to pay a considerable sum as dowry.

7. *Kidnapping*.—So much has this become a custom, that I have frequently had complaints made to me of parties having promised certain sums to have their sons married, and on the marriage taking place that they refused to pay. Their complaints usually took the form of a charge of kidnapping against the bridegroom and his relations.

8. Another result of the practice of infanticide is the trade that has arisen of kidnapping girls of low caste and passing them off as Rajpootins. The trade was regularly organized in Pergunnah Unglee, till last year I had the good fortune to capture and prosecute to conviction a gang of nine.

The price they usually netted for the girls was from Rs. 90 to Rs. 110 ; the purchaser usually asking no questions.

9. One reason for the prevalence of the crime—the ease with which an offender could escape the consequences thereof by flying across the borders into Oudh—has been removed by the annexation of that province, and the establishment of a strong police. The villagers all along the border were in the habit of cultivating fields in both territories.

10. *Kureat Mendha*.—The same remarks are applicable to the old pergunnah of Kureat Mendha, now included in the Tehseel Division of Unglee.

11. *Unglee*.—In Pergunnah Unglee, especially in the Peshkushee Talooqah of Soentha, the crime is still prevalent. The Rajkoomars and Kuchwahas are the principal clans, and rank amongst the most turbulent in the district. The former, from whom the tract is usually called Rajkoomaria, pride themselves on being a branch of the Chouhans: in almost all their villages the disproportion between the sexes is excessive.

Puharee.	Chitai Kulan.	I would especially mention the villages marginally noted as requiring stringent and speedy
Chuk Puttee Narindpore.	Gungowlio.	
Soorapore.	Misrpore.	
Busundeh.	Heerapore.	
Luteefpore.	Oomree.	

action. The inhabitants of Poora Asalat Khan (Khanzadas), who are merely Mussulmans in name, ran away, so that I was unable to make any enquiry in their village; but universal rumour makes them equally with others participators in the crime.

12. *Kerakut*.—The Rughobanses, who form one large family in the Dobhai Pergunnah, are descended from one Gunesh Rai, who obtained the Ilaqa from the then Rajah of Benares: traces of his fort still exist near Chundwuk. A perusal of the returns from this thickly populated pergunnah show

that they have not given up the practice of female infanticide. The disproportion of the sexes, especially in the villages marginally noted, is excessive, and imperatively calls for interference on the part of Government. In this pergunnah the female children are in excess in 10 villages by a total of 35.

Senapore.	Ayelia.	
Kunowrah.	Dewar.	
Koota.	Narainpore.	
Koosmee.	Habsahie.	
Jurasee.	Borcureh.	
Amrouna.	Kuchwund.	
Deha.	Hissampore.	
Beerapore.	Burmulpore.	
Mujetha.	Jumneebares.	
Moorkha.	Chikoe.	
Kcilarce.	Akhyepore.	

13. There can be no doubt from the facts detailed above that in the pergunnahs examined, especially Kerakut, the practice of female infanticide still exists in full force. I am sorry that my regular work prevented the extension of my enquiries to Pergunnahs Murreeahoo, Gurwarah, &c. ; but I have no doubt that similar results would have been obtained.

14. *Causes of the Crime.*—It is not difficult to trace the causes to which this practice may be attributed. They are, I believe, (1.) inordinate pride of race, leading them to prefer the death of their daughters when unable to contract high marriages with superior clans, as formerly,—this inability being usually due to the extravagant wedding expenses necessary.

(2.) Dislike to the term “*sala*” (brother-in-law), and “*susur*” (father-in-law).

(3.) The entire impunity with which the crime may be committed under the ordinary supervision exercised by the Magistrate and the police.

(4.) The practical impossibility of obtaining a conviction under the law as it stands.

15. *Manner in which the crime is committed.*—As a general rule, the Rajpoot tribes in this district are poor. The mode of causing the death of the child is usually one of the following :—

Withholding nourishment, exposure, administering salt, opium, bhang, tobacco juice, juice of dhatoora (*Datura*

alba), madar (*Asclepias gigantea*), pressing the umbilical cord round the neck, and thus causing death by strangulation.

16. *History of the Crime.*—In 1789, Mr. Jonathan Duncan, in his tour through this district during the cold weather, first discovered the existence of the crime amongst the Rajkoomars of Pergunnah Unglee. He took agreements from them to discontinue the practice, and proposed that rewards should be given to whoever would assist in putting down the practice (*vide* copy of agreement, Appendix B.). Mr. Duncan was transferred to Bombay, and nothing appears to have been done till Mr. Thomason, in 1836, attacked their clansmen in Azimgurh. This effort also was temporary; and nothing is heard till Mr. LeBas, in 1854 and 1855, introduced both the Agra and Mynpoorie systems into this district. Traces of the success of his measures are apparent from Mr. Moore's Report; but all effort in this direction was stopped by the Mutiny; and since then anything like the sustained energy and action necessary to combat such an evil has not been known: the crime has increased as much from the knowledge that the Government knows it exists and makes not the slightest effort to cope with and subdue it as from love of the same. For in all the reports and accounts of preventive measures, it is seen that the people themselves have gladly got rid of it as an incubus hateful in reality, but obeyed solely because of a want of moral courage in facing their brethren.

17. *Preventive Measures in Operation.*—The preventive measures introduced were stopped, as I have said, by the Mutiny, and have never since been re-organized; the only attempt at such now in force is the usual inquest on information of sudden death; when invariably the usual report is given of "small-pox was caught and death ensued";—which, in a village where small-pox is not raging, is, to say the least, improbable; or another, "that the child refused nourishment." It is strange that these accidents occur only to female infants of the suspected clans; and in how many cases is there no

report. Even this small supervision has been abandoned in Kerakut, the worst pergunnah in the whole district: a perusal of the punchayutnamahs or inquest reports of my pergunnahs, coupled with the former facts, reveal a sad tale of crime in the district. The police are not to blame; for, until a special organization be formed for this purpose, and each one be made to feel that it is his particular duty, the police will not meddle in cases which they know will spoil their returns, and thus bring down the rebuke of their superiors.

18. *Measures which ought to be introduced.*—As to the measures that ought to be taken, I cannot do better than refer to the experience of Mr. Gubbins, in the Agra District; and Messrs. Raikes and Montgomery, in the North-Western Provinces and Punjab; and the commendation bestowed by Mr. Moore on the preventive measures (*vide* paragraphs 44, 47, 75, 91, 92, 98, Report, 1857) introduced by Mr. LeBas in this district.

19. *Preventive Measures.*—There are two theories,—the Agra and Gubbins' theory, which aims at rendering the crime impossible by a strict and close supervision and a judicious system of reward; and the Raikes' or Mynpoorie or persuasive theory, of rendering the crime unnecessary by removing the cause of excessive marriage expenses, and by appealing to their feelings. I cannot see why the eclectic theory, which has already worked well in this District, should not now again be adopted.

20. Mr. Raikes' scheme demands too much. There is little in the moral nature of the people—no tender string that can be relied on;—otherwise why has the practice not been voluntarily abandoned long ago, since all acknowledge that it is against their religion, and try to conceal the crime as regards their own villages, while they loudly proclaim the offences of their brethren of the same clans and neighbouring villages,—sometimes excusing it as a kind of hereditary obligation imposed on them by their ancestors?

21. Though the religion of the masses presents no high moral standard for their guidance, there yet exists a germ of natural affection and morality which, though now depressed by pride, ignorance, and the bonds of custom, is capable of being educated to great results. In the interim something more than the signing of agreements and the fear of the law is necessary to eradicate the evil ; and, until the moral feeling, which should abhor the crime generally, exists, it is the duty of Government to show itself active in carrying out a system of prevention.

22. The system I would recommend is that which was employed by Mr. LeBas. The men who carried out that system under his superintendence are still alive in this district, and could easily in one cold weather put everything on a proper footing again. The principal feature of the system is *registration*. The births of all children—boys and girls—should be registered ; and for this end I would propose also a marriage registry.

23. *Erecutive*.—As recommended by Mr. Moore, a special staff should be organized of selected well-paid men, one to 50 families, who should, with the paid chumarin or midwife, be cognizant of everything within their ilaqas. On the birth of a child in a suspected family, the paid chumarin should be present and report to the constable, who should see the child : if it be a boy his duty is done ; if a girl, he should see or hear reports of it, for at least 4 or 5 days, daily from the chumarin, who should remain in the house of the parents : if anything suspicious arises, the constable should report to his jemadar, and he to the officer in charge ; and in cases of suspicious death forward the body to the Civil Surgeon. The jemadar, over say 5 or 6 constables, will keep the register of his circle, and forward daily reports to the officer in charge, who should keep an accurate and detailed list of every member of a suspected clan in every village, with notes as to the history of the crime in the particular family.

24. An annual census should also be taken, and compared with the register. I need not say the above will be useless

unless a close personal supervision be exercised by the officer in charge, and frequent visits at uncertain intervals be made to the suspected villages, as much to see how his subordinates work, as to let all the guilty feel that they are closely watched.

25. *Legislative.*—But all the above will fail unless special legislation effect something to render conviction possible. At present the impunity with which the crime has been committed for years shows that the executive are powerless to stem the evil tide. I consider it would be presumption in me to offer suggestions on this subject; and simply refer to paras. 265 to 292 of Mr. Moore's Report; the table of cases, Appendix D; and Draft Act, Appendix F, *et passim*, where the subject has been fully discussed by able men.

26. *External.*—The other measures to be adopted would be to exercise one's personal influence with the people. Among the suspected classes in this district there are none who by their position or example can influence them. The greater part of the country is held by auction-purchasers, decree-holders, or Mussulman zemindars; and I fear the Kangra system of punchayuts would be of no use: still much could be done by an officer resolutely determined to work in season and out of season.

27. *Personal.*—This preventive measure can only be introduced by going among the people themselves, appointing punchayuts to make sumptuary laws, and trying to persuade those tribes who give their daughters to agree not to ruin their future sons-in-law. This very relationship is too often, however, a bar to all friendship and care for each other; many classes never either eating or drinking, or, if they can avoid it, going into a village in which they have a sister or daughter married, and all considering their father-in-law an inferior.

28. *General.*—For the first year a special officer should be appointed to organize the force in Jounpore and Azimgurh. When it has once been set in order, it could be handed over to the district authorities, who must in the end be the great rege-

nerators of this fallen people. From the success exhibited by the efforts in 1854-55, there is every reason to suppose that a few years' close attention to the subject would eradicate this fearful crime, which must be in a measure hateful to human nature, however depraved.

29. I trust that the attention now turned to a too long forgotten duty may end in the entire removal of this stain on our rule.

RELIEF OPERATIONS IN BIJNOUR DISTRICT, 1868-69.

Report by J. C. Colvin, Esq., Officiating Collector of Bijnour, to Secretary to Government, North-Western Provinces, No. 61, dated Bijnour, 18th January, 1870.

SIR,—I have the honour herewith to forward a report left by my predecessor, Mr. Ross, on the relief operations carried on in Bijnour from the commencement of the distress till the end of March, 1869, shortly after which time he left the district.

2. I also forward a report embodying the main features of similar operations from April 1st till their close. In the returns annexed (which will be more fully treated of hereafter) will be found the numbers relieved and sums expended, &c., from the commencement.

3. On my arrival in April I found extensive relief works (chiefly excavation of tanks and clearing out the Nugeena Canal) in progress. I afterwards employed the poor on other works, such as filling in noxious holes, raising streets within and in the neighbourhood of towns, repairing and making roads, where such work could be carried on near a Tehseel; but I was unwilling to employ the poor on such works at a distance from proper supervision,—most difficult to ensure where relief is carried out on a large scale, as it was of necessity in this district, when there was only the ordinary district staff to do it.

4. Fourteen poor-houses had been opened by Mr. Ross; and the *purda-nusheen* women obtained the only relief we could give them, by sending cotton to their houses to be spun into thread. I subsequently established three additional poor-houses, and also sent small sums to the outlying Police-stations, with directions that instant relief should be afforded to any starving poor in their vicinity; and that they should, if need be, be conveyed at once to the nearest poor-house.

5. My first impression of the people was that they looked surprisingly well, nor did they appear to be very weak: there

is no doubt these good results had been brought about by the careful manner in which they had been looked after from the very first symptoms of distress ; yet they did very little work for the wages given them, and I felt convinced that greater strictness in the rules would help to prevent imposition, as many not absolutely starving might prefer relief labour to any other, on account of the rate of pay given for very little work. My object then was to make the works a last resource, when all other means by which a livelihood might be earned had failed ; but at the same time to ensure work to those who needed it, and to exercise sufficient leniency not to dishearten the people from freely coming. Prices in April were certainly very high ; yet I could not but foresee that as the year went on the distress must increase, prices rise, and relief works require more aid.

6. The rubbee harvest was very poor ; and even in the event of early and plentiful rains the khurreef crops would make no sensible difference till the end of July : meanwhile the numbers requiring relief might be expected to increase very largely. Taking all these matters into consideration, and the price of barley being about 20 seers per rupee, I thought a reduction in rates might be advisable, while a bare subsistence could be earned on the new scale. I first reduced the phowra-men from $1\frac{1}{2}$ anna to 1 anna ; the basket-carriers from 1 anna to $\frac{3}{4}$ of an anna ; and then made a partial reduction in basket-carriers to $\frac{1}{2}$ an anna, and $\frac{1}{4}$ anna to children who previously had been, as a rule, getting bread : at the same time the good workers, and they were very few, were given the old rate ; and this system was continued till May 20th. The *purda-nusheen* women were also reduced from 1 anna to $\frac{1}{2}$ anna per chittack of cotton. Endeavours were also made to get a little more work out of the people. Harvest operations also helped us in April. All these causes combined produced a considerable falling-off in numbers relieved during the last fortnight, as the returns showed 34,272 less than in the preceding fifteen days ; though the total number

relieved at the works was very large, *viz.*, 4,22,679,—the women and children largely preponderating.

7. In May, after the cutting of the rubbee crop, large numbers flocked to the works; but the price of barley, the cheapest grain, was rather better than in April. The canal works at Rujubpore, in the Moradabad District, were opened on the 20th; previous to which date I had made arrangements for sending people through and down to the works. When the time came, the people showed great unwillingness to go; but the labour-rate was at once reduced throughout the district,—to 1 anna and $\frac{3}{4}$ anna for phowra-men, $\frac{1}{2}$ anna for basket-carriers, and $\frac{1}{4}$ anna for children and infants; while at the same time, as a rule, all the apparently strong and able people were refused work, the weak and infirm being only admitted. Meanwhile, the higher rates of pay obtainable at Rujubpore were held out as an inducement to the people, and all who consented to go were given a daily wage rather in excess of what they would get on works in the district; yet these means were attended with but very moderate success, for only some 3,250 consented to avail themselves of the advantages offered; and many of these, notwithstanding every means taken to ensure their safe arrival, absconded on the road; others, again, left the works without giving them a fair trial. Mr. Wigram, in his report of the famine of 1860-61, mentions that the people of this district refused the employment offered them on the Budaon and Bareilly Road. In this far more severe time of distress there was much more necessity for emigration; but, as it was in 1860-61, so was it in 1869, they disliked leaving their homes; they disliked harder work, for which in their impoverished state they had insufficient strength; above all, they disliked being roused from the torpor into which circumstances had thrown them, and felt little spirit to better their condition by any exertion of their own. The numbers at the district works, however, owing to the greater strictness, &c, exercised, decreased very satisfactorily by 91,076 people.

8. Though the arrangements of the Canal authorities were matured in June, and were most excellent, yet no great numbers went to Rujubpore,—only 3,598; but the good treatment the people received there having been reported by those at the works, many found their own way down, besides those sent in the paid gangs. As all the able-bodied were denied admittance to the district works, these progressed but very slowly, and indeed very little could be expected from old and infirm men, women,—many with infants at the breast,—and small children; and such were the only labourers. Colonel Baird Smith estimated relief labour at four times the cost of ordinary labour. I now found this to be but a moderate computation; in fact, I hold that where regularly organized works are not established, Government must, if it wishes to save bare life among starving masses, be prepared to *give* and not to *pay*. The numbers who received relief at the works again diminished this month by 29,170, leaving 1,02,433 relieved. The poor-houses also showed a decrease of some 3,000. Very little rain fell during the month.

9. In July there was a considerable falling-off in the numbers sent to Rujubpore, owing to the daily expectation of rain; but our hopes were much disappointed; for the fall was light and capricious, and the rice sowings were in consequence painfully reduced. The price of grain having risen,—barley at 15 seers being the cheapest,—I again altered the rates at the district works;—diggers getting 1 anna; basket-carriers $\frac{3}{4}$ anna; children $\frac{1}{2}$ and $\frac{1}{4}$ anna, according to size; infants, $\frac{1}{4}$ anna; while the *purda-nusheen* women received $\frac{3}{4}$ and $\frac{1}{2}$ anna, according to the quality of the thread. The numbers at the works were 1,22,657; while 54,261 received relief at the poor-houses.

10. August was most trying; more people left for Rujubpore in this month than in any other, while the works and poor-houses both showed large increases. For the first fortnight there was no rain to speak of: prices rising; barley,

the cheapest, a little over 10 Government seers. No wonder the people were in despair at the prospect before them; all our workpeople were fit for was to plant grass on the sides and slopes of the tanks they had dug, which suited them, and was as useful as anything else they could be put to: the despair was general among all classes.

I one evening found an old woman, very weak and emaciated, lying on the road unable to crawl; she was taken to the dispensary, and after receiving proper treatment recovered, and said her children had turned her out, as they could only just keep themselves alive, and she must shift for herself; she had nearly arrived at the Bijnour poor-house when weakness and hunger overcame her; she must have been passed by hundreds who had just been paid at the works, but no one heeded or seemed to give a thought to her. Such cases of children turning out their old parents have, I fear, not been uncommon. The long-expected rains at last fell on the night of the 17th August, and things at once looked brighter: several days heavy rain flooded the country, and dispelled the alarm felt for the khurreef crop. The numbers who received relief this month were 2,28,651 on works, and 79,150 at poor-houses.

11. Though it was impossible to stop all works and close the poor-houses immediately, I had, early in September, directed that far greater strictness should be exercised regarding admission to the works; and, as very shortly after orders to the same effect were received from Government, still more stringent measures were adopted, and rates were again lowered; so that the works showed a considerable decrease, while at the same time the numbers at the poor-houses were diminished; less than 50 were despatched to Rujubporc. Some of the poor-houses were closed during the latter part of the month. In the third week of September we had a most unusual heavy rain-fall, which caused much anxiety lest the ripening crops should suffer; and there is no doubt that cotton and

bajra were injured ; but, on the other hand, everything else was benefited.

12. The Rujubpore works were closed at the end of September ; and in October piece-work was given to the poor on the works : they were pressed to do it : the result was a very large decrease in the numbers, as the people found that better wages could be earned near their homes in agricultural and other pursuits. The poor-houses were also weeded ; and it being notified that they would be closed on the last day of the month, the poor gradually left them : in fact, all but very casual relief ceased on 31st October.

13. In addition to the large sum, Rs. 1,78,344, expended in the district, great and effectual indirect help was given by the suspension of the November instalment, amounting to Rs. 2,05,931 ; while the June demand was also not pressed : this is now being realized ; Rs. 1,34,002 out of Rs. 2,00,661 have been paid. Tuccavee* was also most liberally advanced

* Statement No. VII. by Government for the purchase of rice seed, sugar-cane, and construction of wells, &c.; no less a sum than Rs. 69,683 having thus been distributed, and with the best results, for it gave heart to the poorer agriculturists who were the recipients of the advance : it was, moreover, a boon to impoverished zemindars and village communities. Among the mitigants of the pressure must be included the small Nugeena canal, which watered an area of 2,759 acres, or 2,023 in excess of the previous year. The health of the year has been remarkably good, considering everything. There is no doubt that our returns do not by any means show the real amount of deaths arising from famine. The police, to begin with, were very chary in allowing that any one within their respective Circles had died of starvation ; and it is quite impossible to guess at the number of poor wretches who died from the continued effects of scanty and coarse food : any slight ailment attacking such people generally ended fatally, as was shown by the few cases

that were brought to notice. The people, whether rightly or wrongly, are unanimous in declaring that the matter having been taken in hand in time, the loss of life was not so great as in 1860-61; and my own experience of that year, when I was in the adjoining district of Moradabad, and had occasion to come into Bijnour, rather agrees with the current opinion. However that may be, I am convinced that, owing to Mr. Ross' promptness, and the hearty support consistently given by Government, the suffering, bitter though it was, has been most considerably mitigated; and that thousands of human beings, especially women and children (who were some 76 per cent. of the people relieved) have been saved from starvation.

14. The great, and indeed insuperable, difficulty we had to contend with in our works was the matter of supervision, which has of necessity been far less strict than it should have been. There was no extra help: indeed, for some time, the district was short-handed; and so it is but little surprising that the work has been indifferently done, and at a large cost. When labour is properly organized and overlooked, as it was at the canal at Rujubpore, it was found that, after a while, people from whom we could extract next to nothing worked well, and not unfrequently up to the highest rates; so that the people did not lose their self-esteem by degenerating into simple recipients of alms, as they were apt to do on the district works, and at the same time a useful undertaking was begun. It is, indeed, most earnestly to be hoped that the Eastern Ganges and Ramgunga Canals, which are to pass through this district, may be set in hand as speedily as possible, to preclude the possibility of another famine; though at the same time one of the most pressing wants of the district, and especially felt in bad years, is that of good metalled roads.

15. As far as I can ascertain, wheat in 1860-61, at the worst time, fell to about 10 (Government) seers; whereas this year it fell so low as to 9 seers; and the average price from

January 23rd to November 20th was 12 seers 1 chittack. This was a very enhanced price, and indicates a vast amount of distress to the hand-to-mouth population of the district, when it is remembered that 19 seers 11 chittacks was the average price of wheat from 1858 to 1867, which includes the famine year of 1860-61. Wheat I only take as a standard ; for, of course, the people purchased the cheaper and commoner sorts of grains, which, if not so sustaining, filled the stomach more : and this, to half-starving people, is a great matter.

16. Agriculturists made but little use of the district works, which were chiefly filled with julahas and chumars : the preponderance of women and children was very marked, amounting to 75 per cent. out of the entire number : relief was received thankfully ; but at the same time the poor seemed to think Government was bound to save them from dying.

17. The average rain-fall during the months of distress—*i. e.*, from November, 1868, to end of October, 1869—was 39·15 inches ; but from June, 1868, to end of May, 1869, 25·2 inches only fell ; while in the preceding year for the same months the fall had been 53·7 inches. The scantiness and lateness of the rain has caused a very marked decrease in the rice cultivation, which is generally very largely carried on in this district. I do not think I am wrong in stating that one-half the usual quantity was either not sown, or, if sown, did not germinate ; bajra, oord, and mote, were, however, grown in larger quantities than in ordinary years. The cotton crop being in pod when the heavy rain fell in September, suffered considerably ; but the high price of the produce has been very favourable to the cultivator. Sugar-cane, which had been sown over a largely extended area, was much stunted, and in many cases quite parched up by the continued drought ; the September rain was of the greatest benefit to what had been saved, and the crop is a fair one. The rubbee sowings have been most extensive, and promise remarkably well.

18. As might be expected, the Abkaree revenue suffered : there was a falling-off of Rs. 10,320 from November, 1868, to the end of October, 1869, as compared with the same period in the previous year. The Police returns for the year 1869 show a total increase of 284 offences against property over those of 1868 : robberies and thefts decreased, but burglaries largely increased.

19. I think there can be little doubt but that the past year has been one of far greater distress than 1860-61, when the scarcity was not so prolonged ; and it is not surprising that the numbers relieved have been very much increased. In 1860-61 there were 9,36,489, and in 1869, 29,37,998 ; while the expenditure rose from Rs. 31,859 to Rs. 1,78,344. When it is remembered that the population of this district is estimated at 6,90,000, it will be seen that the distress was very widely felt.

20. Liberality on the part of the well-to-do portion of the community was not wanting ; for the large sum of Rs. 17,000 was subscribed by natives, and it is satisfactory to note that of this the greater portion has been actually paid.

21. All relief operations were carried out as much as possible under European superintendence ; but this, however, could only be thoroughly done in a few places. The Tehseeldars were directed to give their special attention to the subject, and were helped more or less by Committees. When relief was needed at a distance from a Tehseel, either Committees of the principal men were formed, or one influential man was given the charge of looking after matters, as seemed most convenient. Some of the Committees were not of much real use ; but, on the whole, the plan answered. I enclose a separate list of those who took more prominent interest in the matter.

22. Of the officials who had most to do with these operations, I may mention Mr. James White, Assistant Collector, who was untiring in his exertions. He was encamped at Nugeena from March to the middle of May, and threw himself with great energy into the work. On his return to the

station, he took principal charge of the large works in the vicinity. Mr. Archer, District Engineer, also made himself useful. Deputy Collector Zumeerooddeen Ahmed displayed unflagging zeal and activity, and did what very few natives care to do, viz., personally see to the conservancy arrangements. When he left the district, Deputy Collector Inayut Hossein Khan supplied his place with credit. Moulvie Kadir Ali, Deputy Collector in the Settlement, did good service in organizing the improvements to the town of Shercote. All the Tehseeldars (Anoop Singh, Pundit Radha Kishen, Khoorshed Ali Khan, Mirza Nuseerooddeen, and Sheikh Bisharut Ali) worked well and laboriously, and I had often to thank them for practical advice. Pundit Mahtab Rai, Abkaree Darogah, was constant in attendance at the Bijnour relief works. The Collectorate Serishtadar, Moulvie Muzhuroollah, was always ready and willing; and Baboo Becha Ram Chuckerbutty, head clerk, showed the same spirit. In fact, I may say that all the officials connected with the matter seemed to feel their responsibility, and worked hard and well, under a very great pressure.

23. In closing this report, I have to express my regret that I have been unable to furnish it at an earlier date. The accounts have been intricate; and even now there is a difference between income and expenditure of Rs. 994, which I cannot at present trace; but I have not thought it proper to delay the report any longer on this account.

I have, &c.,

J. C. COLVIN,

Offg. Collector.

(C O P Y .)

Memorandum on the Famine in Bijnour District, 1868 and 1869.

By H. G. Ross, *Officiating Collector.*

As I am about to make over charge of the district, I think it as well to place on record a brief account of the distress in the district, with steps taken to meet it from the commencement up to date.

It may first of all be premised that the crops of 1868 were unusually good ; the sugar was so abundant that although the zemindars employed all the labour they could command from January to April, yet they could not cut and press the whole of the cane ; and in many places it was left standing in the fields to flower, and afterwards be burned, or cut up for fodder. For the last three or four years the crops have been above the average. Although the crops have been so good, prices have been high ; and so it may be fairly argued that at no time could the people have been in a better position to meet bad years than they were in 1868 ; but the sequel will show how little able they have been to cope with even one year of scarcity, notwithstanding the many previous years of plenty. This is partly due to their improvident habits, and partly to the system of borrowing and receiving money in advance on the credit of their coming crops, which takes all or nearly all the profits of the good years out of the hands of the agriculturists, and transfers them to the pockets of the bunniah and money-lenders.

In the spring of 1868, large quantities of sugar-cane were sown ; everything went favourably with it all through the spring, hot weather, and up to the time the rain should have commenced. Towards the end of June, as no rain fell, fear arose. Time pressed on, still no rain ; and about the middle of July all the early sowings were reported failures. Between the 18th and 21st of July rain fell in abundance. Although too late to save the first crops, it came in time to cheer up the people, and enable them to go on vigorously with rice sowing and other rain crops ; and also for the time being removed all fears for the sugar-cane, which began to shoot up and grow luxuriantly. The price-current was as follows :—

	Wheat.	Gram.	Barley.	Bajra.
	1st. 2nd.			
1868. {	S. S.	S.	S.	S.
	Per rupee 18 20	22	28	22

160 RELIEF OPERATIONS IN BIJNOUR DISTRICT, 1868-69.

Things went on very well up to the 15th August; prices rose and fell with each rainy or dry day, but remained pretty much as quoted above. From the 15th to 30th no rain fell, and all the crops began to suffer. Price-current was—

1868.	{	Wheat.		Gram.	Barley.	Bajra.	Dhan.
		1st.	2nd.				
		S.	S.	S.	S.	S.	S.
	Per rupee	16	17	18	26	21	25

A little rain fell in the beginning of the month, and prices were again better; but as September went on, and little or no rain fell, prices again rose, and by the 17th of September the whole of the rice crops, except in some few of the khadir lands, had disappeared from the face of the earth—the very straw having been greedily devoured by the starving cattle. As day succeeded day, and no rain was vouchsafed, things became gloomier and gloomier: bajra and jowar were gradually following the rice, and people looked to the sugar-cane as their only stand-by. The price current was—

1868.	{	Wheat.		Gram.	Barley.	Jowar.	Dhan.
		1st.	2nd.				
		S.	S.	S.	S.	S.	S.
	Per rupee	14	15	18	17	17	20

Up to the beginning of October there was no improvement. Day after day hopes were raised by large banks of clouds collecting from all sides, but the west wind rose, and they were soon dispersed, and all hopes dashed to the ground. Price-current on 1st October was—

1868.	{	Wheat.		Gram.	Barley.	Dhan.	Jowar.	Bajra.
		1st.	2nd.					
		S.	S.	S.	S.	S.	S.	S.
Average years.	Per rupee	11	11½	12	16	14½	14	14

As October advanced, and still no rain, the sugar-cane began to suffer; white-ants attacked it, and in the high grounds it commenced to wither and die. Notwithstanding this, prices

of grain became a little better, owing to large importations. On the 16th of October the price-current was—

1868.	Wheat.		Gram.	Barley.	Bajra.	Jowar.	Dhan.	
	1st.	2nd.						
	S.	S.						S.
	Per rupee	12	13	13	16	14 $\frac{3}{4}$	14 $\frac{3}{4}$	17

No change for the better came over the scene ; and, as up to the 10th of November no rain had fallen, and there was no prospect of any spring crops being sown, a panic fell on the land ; large numbers of labourers and low caste people fled away, and without knowing where they were going, and without any other definite reason or object than a wish to get away from a country which they considered doomed : old men and women gave way to despair and prepared to die. There was in reality no occasion for this panic and despair ; but the cause of it can easily be explained. In the famine of 1860 and 1861, people died from starvation in very large numbers : it is impossible to give any approach to correct figures, but the villagers, in talking about it, say in hundreds and hundreds ; many villages are to this day but half inhabited ; the residents of the other half having in 1860 and 1861 either perished from starvation or fled away never to return. The actual drought in 1860 was not near so great as in 1868 ; and, whereas in 1860 all the khadir lands produced luxuriant crops, in 1868 only in some few places was anything green to be seen. In 1860 the whole of the Ganges khadir—a very large extent of country—yielded crops far above the average. In 1868 it failed totally.

Towards the end of 1860 rain fell abundantly ; the sugar-cane was saved, and sowings for the future spring crops could be carried on with every prospect of a good crop. In 1868 no rain whatever had fallen ; the sugar-cane was rapidly withering away, and there was no chance even of breaking the ground for the spring crops. The people argued—“ If, in 1860 and 1861, our fathers and mothers and brethren died in hundreds,

how many more of us must die in this year, which is so infinitely worse?" About this time many of the Tehseeldars and Deputy Collectors were also seized with a panic, and were very desirous that poor-houses should be opened and relief works commenced; but, on questioning them as to facts, &c., it was clear they were wrong. Daily large numbers of villages were inspected, the people spoken to, &c.; and the conclusion come to was, that although it was necessary to be prepared, there was no occasion for immediate action: on the contrary, to have commenced relief operations at that time would have been most hurtful. Government was warned to be prepared to give relief and open out works, and in the meantime a careful watch was kept. Government, in reply to the warning, stated its readiness to give any help that was required. The price-current was on 12th November—

1868. Average years.	Wheat.		Gram.	Barley.	Dhan.	Jowar.	Bajra.
	1st.	2nd.					
	S.	S.	S.	S.	S.	S.	S.
Per rupee	11 $\frac{3}{4}$	12 $\frac{1}{4}$	13	16	16 $\frac{3}{4}$	14 $\frac{1}{2}$	13 $\frac{1}{2}$

In middle of November, His Honor the Lieutenant-Governor, Mr. Inglis, and the Hon'ble Mr. Drummond, and Mr. Simson, came to Bijnoor, and, after a conference, it was decided to put off the collections of the November kist. It was also determined to give tuccavee advances for wells, both kutchra and pukka, on more favourable terms than usual. The district authorities were directed to send up proposals for work to employ the distressed population. A memorandum was submitted proposing large works in neighbouring districts for able-bodied people. Repairs to district roads, at a cost of Rs. 34,000, was proposed for the weaker people. Cotton-spinning for *purdah-nusheen* women, rope-making for old men, &c., &c. This at once set in a reaction; the zemindars saw Government was prepared to deal leniently with them; their tenants and work-people began to look about them, and see, for the present at least, things were not so bad as they

thought. Towards the end of November, however, things began to get worse again; no rain fell, and the price of grain was rising; the price of coarser grain, too, came nearer and nearer the same as wheat; very little seed for spring crops was sown, the cultivators being afraid to throw away even a few seers of certain food on what appeared such a poor chance of any return. Up to this time no seed that had been sown had germinated, except in some of the khadir lands. Price-current at the end of November was—

1868. Average of other years.	Wheat.		Gram.		Jowar.	Bajra.	Barley.	Dhan.
	1st. 2nd.							
	S.	S.	S.	S.	S.	S.	S.	S.
	Per rupee		11 $\frac{1}{4}$	11 $\frac{1}{2}$	12	13 $\frac{1}{2}$	13	15 16

It was thought advisable to open out relief works on the different roads. In the first week of December things took a very bad turn, and again the people were seized with a panic; large numbers could be seen in the jheels and tanks searching for edible nuts and roots. These roots were not for their present want, but to store for the future. Our relief works were overwhelmed with applicants. During all this time Government had been kept almost daily informed of the state of affairs, and assurance was received of ample support when necessary. The district authorities were told to carry on any work that was absolutely necessary, and Government would supply the funds. The price-current was—

1868. Average years.	Wheat.		Gram.		Barley.	Bajra.	Jowar.	Dhan.
	1st. 2nd.							
	S.	S.	S.	S.	S.	S.	S.	S.
	Per rupee		10	10 $\frac{1}{4}$	11	12 $\frac{1}{2}$	11 $\frac{1}{2}$	13 13 $\frac{1}{2}$

Still rain held off: the sugar-cane, although withering in the high lands, kept green and fresh in the khadir. Relief works were carried on with vigour. The price-current on the 12th December was—

1868. Average years.	Wheat.		Gram.		Barley.	Bajra.	Jowar.	Dhan.
	1st. 2nd.							
	S.	S.	S.	S.	S.	S.	S.	S.
	Per rupee		9 $\frac{3}{4}$	10	10 $\frac{1}{2}$	13 $\frac{1}{2}$	11	12 13 $\frac{1}{4}$

A little dew began to fall now, and helped to keep the wheat green. Large works were opened in the Saharunpore District, to which labourers were sent. By order from Government the destitute were supplied with road expenses. A meeting was held of all the influential zemindars, mahajuns, and others, and an agreement was come to that they should pay one per cent. on their income, to be collected in three instalments, in February, April, and July. Prices improved a little. About the end of December people became more contented; a little rain fell, which did a great deal of good to the young wheat. The relief works were not so besieged. Large numbers were employed in sugar-pressing, and altogether things looked brighter; but the price-current was still high. The total number of people employed on relief works during December were—

Men.	Women.	Children.	} at a cost of							
23,354	16,780	13,844	Rs. 3,923-4-6.							
		Wheat.	Gram.	Barley.	Bajra.	Jowar.	Dhan.			
		1st.	2nd.							
		S.	S.	S.	S.	S.	S.	S.		
1868.	{									
Average										
years.										
		Per rupee		10 $\frac{3}{4}$	11	11 $\frac{1}{2}$	14 $\frac{1}{2}$	12 $\frac{1}{4}$	14	15

The first few weeks in January were very bad. There was no sign of rain, and so there was no apparent chance of the sugar-cane being sown. Up to this time it was the sugar-cane alone that had saved the district. Bad as it was, it still kept large numbers employed; and so, when the people saw all chance of preparing the land and sowing seed for the next year's crops vanishing, they were indeed disheartened. At this juncture Government again stepped in, and authorized an immediate advance of a lakh and a half of rupees for the purpose of making kutchas wells all over the district, and so ensuring at all events some crops. Again the hopes of the people rose; and, curious enough, the very day the Government telegram arrived sanctioning the outlay for kutchas wells,

a steady soaking rain set in and continued for three days. It commenced gently and by degrees, so that not a drop was lost. A load was taken off the minds of every one. All the people, high and low, were in the greatest spirits. Our relief works were deserted, and the labourers said now that God had vouchsafed them such propitious rains they would want no further help; hoeing the sugar-cane and other village matters would keep them employed. It may be here remarked that in their enthusiastic hopes they were just as wrong as formerly in their despair.

Things, however, were much improved. The price-current was—

1868.	{	Wheat.	Gram.	Barley.	Bajra.	Jowar.	Dhan.		
Average		1st.	2nd.						
years.		S.	S.	S.	S.	S.	S.	S.	
		Per rupee	12½	13¼	13¼	16	13	14	10¼.

The number of people employed on relief works from 1st to 15th January was—

Men.	Women.	Children.	} at a cost of Rs. 3,373-12-6.
17,064	15,771	14,473	

From 15th to 31st there were employed—

Men.	Women.	Children.	} at a cost of Rs. 1,941-11-3.
9,285	10,699	7,924	

Besides this, cotton had been given to *purda-nusheen* women to spin into thread; old men had been employed making string; and the very old, infirm, and sick received relief in shape of cooked food. A poor-house was opened at Bijnour, and Relief Committees established at Dhampore, Chandpore, Nujeeabad, Nugeena, and some other places.

In the beginning of February work in the sugar-cane fields was carried on on a very large scale.

The price-current was—

1869.	Wheat.		Gram.	Barley.	Jowar.	Bajra.	Dhan.
	1st.	2nd.	S.	S.	S.	S.	S.
	S.	S.					
	Per rupee		12 12½	12½	16	13½	12½ 15½

Hardly any one was employed on the relief works, the number being from 1st to 15th February—

Men.	Women.	Children.	}	at a cost of Rs. 425-5-6.
2,037	1,770	1,348		

The *mu'd-i-nusheen* women were, however, still badly off, and the Relief Committees daily gave a large amount of cotton to be spun; and after the 15th a change for the worse took place. The price-current on 17th was—

1869.	Wheat.		Gram.	Barley.	Jowar.	Bajra.	Dhan.
	1st.	2nd.	S.	S.	S.	S.	S.
	S.	S.					
	Per rupee		11½ 12	11½	15½	13	13 15

People began to come in large numbers to the relief works. The experiment of giving cooked food was tried, to test whether the people were really hard up: it was found that they came in just as great numbers as for the money payment. On 24th February the price-current was—

1869. Average years.	Wheat.		Gram.	Barley.	Jowar.	Bajra.	Dhan.
	1st.	2nd.	S.	S.	S.	S.	S.
	S.	S.					
	Per rupee		11½ 12	11½	15½	12½	12½ 15

Day by day the people seemed to be getting worse off; many were to be found actually starving, and yet would not come into the poor-house at Bijnour.

Poor-houses were therefore opened out at Dhampore, Nujeebabad, Nugeera, Chandpore, Sherote, Nehtour, Huldour, Afzulgurh, and Burrapoora. Relief labour was all turned on to tanks at Nugeena, Bijnour, Dhampore, Chandpore, Nujeebabad, Afzulgurh, Huldour.

The number of persons employed from 15th to 28th February was—

Men.	Women.	Children.	}	at a cost of Rs. 2,770-6-9.
13,957	17,557	10,818		

As it seemed quite evident that many of the agriculturists were too poor to purchase sugar-cane seed, Government was applied to, and sanctioned tuccavee advances to extent of Rs. 20,000. The total number of poor relieved at the poor-house and by Relief Committees from the commencement to the end of February was 51,200.

In the beginning of March the people became worse and worse off. Many who now came to the poor-house were in the last stage of starvation. Two men who came to the poor-house in this state and received an immediate supply of food died from the effects; and so it was thought advisable that all poor who came to the poor-house in a very exhausted state should be first of all examined by the doctor, and food given according to his orders. The children began to look very thin and starved. To prevent the possibility of the relief works interfering with sugar-cane operations, wages were reduced as follows :—

Phowrah-men.	Basket-men. and Women.	Children.
1 anna.	$\frac{3}{4}$ anna.	$\frac{1}{2}$ anna.

But all women with suckling children received a chupatee extra, and all children too young received from one to two chupatees. Notwithstanding this, many of the children seemed to be in such an emaciated condition that they were sent to the dispensary, and food was provided for them according to the doctor's orders.

The price-current on 11th of March was—

1869.	Wheat.		Gram.	Barley.	Jowar.	Bajra.	Dhan.	
	1st.	2nd.						
	S.	S.	S.	S.	S.	S.	S.	
{	Per rupee	11 $\frac{3}{4}$	12 $\frac{1}{4}$	12	15 $\frac{1}{2}$	12 $\frac{1}{2}$	11 $\frac{1}{2}$	14 $\frac{1}{2}$

The number of people employed on relief works was 17,591.

From now to the end of the month the weather was most favourable for the crops. The wheat that only germinated in

January was advancing rapidly, and great hopes were maintained that it would yield something. Notwithstanding this our relief works were overwhelmed. The agricultural populations were too poor to hire labour; many hundreds of farmers, who in ordinary years never touched a plough or handled a hoe, were now hard at work with their own hands.

Although the amount of sugar-cane sown was much larger than usual, yet there was a very much smaller number of hired labourers employed. Men who last year sat at rest, giving two or three annas a day to labourers, were this year working away like common coolies. It is to be hoped that a habit of work may thus be contracted, and so out of the vast amount of misery a little good may be reaped. As March advanced a marked improvement in the condition of the people could be observed; out of many thousands only one or two starved and emaciated people could be seen. Many children were still bad, but they also were improving. The children in arms, however, were beyond our control; and it is feared that, even if they live, this year of scarcity will always remain stamped on them.

Government made every exertion to open out some large irrigation work in the district; but the Irrigation Department was not in a position to comply. At Rujubpore, on the confines of the district, work on the new canal was ready; but as it was supposed that most of the labourers would go to their homes during the harvest, it was not thought advisable to take on the large and expensive staff required until after the harvest had been cut: in the meantime all the Nugeena labour was turned into the canal. Many people who came to the relief works observed that "the people are not starving; they are all strong, plump, and well: therefore the money is wasted on them." It is submitted that this is the only thing for which any credit is taken; they are all or nearly all *quite* well, and in good condition, simply because relief stepped in in time. It would be but a poor kind of help that waited

until starvation and scarcity had time to undermine the health and strength of the community before coming to its relief.

From my experience in this famine, I am convinced that it is of no use to open out relief works at a distance during the cold weather months : very often a whole family have but one blanket amongst them, and so if the family separates some will be left to perish of cold. Another thing is, no one can give an idea of the numbers of people who will come to relief works ; and arrangement for baskets, phowrahs, &c., &c., should be made for at least three times the number of people expected.

Payment should be always commenced in cooked food ; and then, if people come in large numbers, money payment can be resorted to. Cooked food is the most expensive to Government, and the poor people can get much more food for a small sum of money than Government. At the same time, cooked food must be returned to every now and again to keep off people who are not really hard up.

No. I.

Statement of Income.

* Received from the Road and Ferry Funds.	Received on account of Poor-houses.					Total.	Grand Total.
	Received as advances from the Government Treas- ury.	Subscriptions collected for repairs to streets in the town of Shercoote.	Subscriptions col- lected in the District.	Government equi- valent.	Donation from Central Relief Committee.	Sale of thread, &c., &c.	
Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
20,010 11 8	1,12,871 1 10	1,549 11 9	17,393 7 9	15,047 14 10	5,000 0 0	9,935 3 5	1,81,808 3 3

BIJNOUR COLLECTORATE: }
The 15th January, 1870.

J. C. COLVIN,
Officiating Collector.

No. II.

Statement showing the number of persons relieved, and the expenditure on Relief Works, Poor-houses, &c., in the District of Bijnour, from December, 1868, to December, 1869.

Month.	Repairs to Roads.					District Relief Works.				
	Men.	Women.	Children.	Total.	Expenditure.	Men.	Women.	Children.	Total.	Expenditure.
					Rs. As. P.					Rs. As. P.
December, 1868	23,354	16,780	13,844	53,978	4,903 4 2	...	...	...	...	...
January, 1869	26,996	26,205	22,885	76,085	5,429 12 0	...	...	...	...	...
February, "	431	422	330	1,183	124 10 6	20,444	37,554	18,871	76,869	5,096 10 5
March, "	...	...	...	...	...	135,559	326,482	117,569	579,610	30,862 12 6
April, "	...	...	...	...	...	108,245	2,3,559	100,775	422,679	21,235 7 4
May, "	...	...	...	...	...	95,995	163,622	71,986	331,603	14,517 11 4
June, "	...	...	...	...	...	31,424	53,175	17,833	102,433	5,413 12 1
July, "	...	...	...	...	...	35,899	61,179	25,589	122,657	7,166 11 8
August, "	...	...	...	...	...	43,746	131,853	64,052	238,651	12,120 5 8
September, "	...	...	...	...	...	38,986	116,570	40,340	195,896	11,678 3 9
October, "	...	...	...	...	...	13,839	25,497	6,752	46,048	2,296 9 4
November, "	...	...	...	...	...	...	...	...	...	...
December, "	...	...	...	...	...	...	...	...	...	...
Total	50,780	43,407	37,069	1,31,246	10,457 10 8	523,277	1,129,402	453,767	2,106,446	110,420 4 1

No. II.

Statement showing the number of persons relieved, and the expenditure on Relief Works, Poor-houses, &c., in the District of Bijnour, from December, 1868, to December, 1869.—(Continued.)

Month.	Poor-houses.				Advanced for road expenses, &c., to the people who proceeded to Chukrata in Saharunpore, and Rajpore Canal Works in Moradabad District							
	Men.	Women.	Children.	Total.	Expenditure.	Men.	Women.	Children.	Total.	Expenditure.		
						Rs.	As.	P.		Rs	As.	P.
December, 1868	...	...	...	...	...	...	...	...	...	...	...	...
January, 1869	...	...	...	...	...	...	...	...	...	...	...	...
February, "	11,947	13,768	25,485	51,200	4,416 5 5	1,374	...	...	1,374	...	...	...
March, "	14,804	46,179	132,104	193,087	8,449 1 3	...	...	...	...	...	...	...
April, "	8,732	29,117	90,061	127,910	5,104 9 2	...	...	...	...	...	...	...
May, "	9,023	18,905	19,219	47,147	3,373 14 1	1,669	...	...	...	...	...	...
June, "	9,651	21,636	12,772	44,059	3,118 15 0	1,764	...	...	...	...	...	...
July, "	13,237	30,008	11,076	54,261	4,635 5 1	1,309	...	...	...	...	...	...
August, "	17,598	46,482	15,070	79,150	6,929 12 7	2,176	...	...	...	...	...	...
September, "	14,986	39,065	11,464	65,515	5,864 3 7	1,800	...	...	...	...	...	...
October, "	4,303	13,518	2,877	20,698	1,949 15 10	...	...	...	...	...	...	...
November, "	...	12	...	12	80 15 3	...	...	...	...	...	...	...
December, "	...	...	...	...	26 12 0	...	...	...	...	...	...	...
Total	104,281	258,690	320,668	683,039	43,979 13 3	8,472	5,879	2,916	17,267	3,433	6	6

No. II.

Statement showing the number of persons relieved, and the expenditure on Relief Works, Poor-houses, &c., in the District of Bijnour, from December, 1868, to December, 1869.—(Concluded.)

Month.	Repairs to Bijnour and Kasheepore Road.	Total.					Remarks.
		Men.	Women.	Children.	Total.	Expenditure.	
						Rs. As. P.	
December, 1868	...	23,354	16,780	13,844	53,978	4,903 4 2	
January, 1869	...	28,569	26,205	22,885	77,459	5,748 1 9	
February, "	...	32,822	51,744	44,686	129,252	10,637 10 4	
March, "	...	1,050 0 0	372,661	249,673	772,697	40,361 13 9	
April, "	...	1,500 0 0	242,678	190,836	550,589	27,840 0 6	
May, "	...	117,077	183,472	91,833	381,992	20,779 0 1	
June, "	...	106,687	76,386	31,348	150,573	9,879 9 1	
July, "	...	42,839	92,091	37,106	179,632	12,497 7 0	
August, "	...	50,435	180,598	70,094	313,212	22,689 13 0	
September, "	...	62,520	155,828	51,876	261,856	17,613 10 1	
October, "	...	54,152	38,925	9,629	66,746	4,284 2 6	
November, "	...	18,192	12	...	12	732 15 3	
December, "	876 12 0	
		686,810	1,437,378	813,810	2,937,998	178,344 3 6	

BIJNOUR COLLECTORATE: }

The 15th January, 1870.

J. C. COLVIN,
Officiating Collector.

No. XII.
Members of Committees who are deserving of notice.

Tehseel.	Place.	Name.	Remarks.
Bijnour	Bijnour.		
	Daranuggur	Doorga Pershad	<p>A wealthy buniiah of the place, who looked after the poor-house. These large landowners exerted themselves in supervising the construction of a tank and the working of a poor-house at Huldore. This gentleman had employed a considerable number of people throughout the year on his own account; he and his son took charge of the Tajpore poor-house; he also gave a large sum of Rs. 1,000 at Shereoto.</p> <p>These men gave a good deal of time and attention to the relief operations.</p> <p>No other member of the Committee took any active share in the matter.</p> <p>Began excavation of a tank to give relief to the poor, and also gave a large subscription to the town for paving.</p> <p>These men were of considerable use in their respective towns.</p> <p>Had charge of the works' poor-house, and took some interest in it.</p> <p>These men assisted throughout.</p> <p>Had charge of the works and poor-house at Keerutpore, and on the whole displayed considerable zeal, especially the former.</p> <p>Gave efficient aid in attendance at works and poor-house.</p> <p>The first of these two was especially active and energetic in the construction of a drain through the place.</p> <p>Entered into the work of the poor-house very heartily, and had the management of it at his place of residence.</p>
	Huldore	Kooers Maharaj Singh and Boodh Singh.	
Chandpore	Tajpore	Rajah Pertab Singh	
Dhampore	Chandpore	Pirbhoo Lall, Chujee Singh, Sheo Suhai, (Karinda of Bukhtawur Singh)	
	Dhampore	Salig Ram	
	Shereoto	Chowdhree Busunt Singh	
Nujeebabad	Nehfore	Narain Dass, Syud Ead Ali	
	Sheohara	Zalim Singh	
	Nujeebabad	Moona Lall, Hakeem Moosin Ali,	
	Keerutpore	Nooftes Tujummal Hossein and Tufuzool Hossein, and their sons	
Nugeena	Nugeena	Al Ali, Ali Oozuman, Khooshal Ram	
	Afzulgurh	Baha-ood-Deen Khan, Salig Ram	
	Rehur	Rai Koondun Singh	

J. C. COLVIN,
Officiating Collector.

Reply of Government, North-Western Provinces, to Collector of Bijnour, dated Camp Khoorjah, the 9th February, 1870.

SIR,—I am directed to acknowledge the receipt of your letter No. 61, dated the 18th ultimo, with its enclosures, on the subject of the famine in Bijnour.

2. In reply, I am desired to convey to you the thanks of His Honor the Lieutenant-Governor for your report, which, with Mr. Ross' valuable memorandum, gives a very complete outline of the nature and progress of the calamity.

3. The thanks of the Government have already been conveyed to Mr. Ross and yourself; but His Honor cannot refrain from again expressing the great obligations under which you both have laid the Government by the energy, watchfulness, and devotion with which you applied yourselves to the work. The excellent judgment with which you varied the rates from time to time with the view of testing the reality of distress and reducing the relief works as far as safety admitted, deserves special commendation.

4. The liberality of the inhabitants of the district—their suffering from the calamity—in subscribing so large a sum as Rs. 17,000, is observed with approval.

5. The services of Mr. James White, Assistant Collector, deserve particular praise. Zumeer-ood-Deen, Deputy Collector, is noticed with much commendation; as also his successor, Inayut Hossein, who appears to have followed in his steps.

6. I am to request that the acknowledgments of the Government may be communicated to the gentlemen enumerated in Appendix XII., and also to the Tehseeldars and others mentioned in para. 22 of your report.

I have, &c.,

R. SIMSON,
Secy. to Govt., N.-W. P.

Art. XI.**CHEMICAL EXAMINER'S REPORT FOR 1869.**

*To R. SIMSON, Esq., Secretary to Govt., N.-W. Provinces,
dated Allahabad, the 26th January, 1870.*

SIR,—I have to request the favour of your laying before the Hon'ble the Lieutenant-Governor the following *resumé* of the work done by the Chemical Examiner during the past year.

2. There has been a considerable increase in the number of references, caused entirely by an unprecedented number of cases connected with cattle-poisoning: of these I shall have to speak more in detail, and I refer to them in the meantime merely to indicate the source from whence the large increase of cases was derived. There were in all 277 cases sent up, being 118 in excess of the number received in 1868; and of the excess, 117 were cases reputed to be connected with cattle-poisoning.

3. Of these references, Dr. G. Grant, who officiated for three months, disposed of 88, and the remainder, 189, were reported on by myself.

4. The cases divided themselves into—247 of poisoning or reputed poisoning in man or cattle; 21 of suspected stains of blood on weapons, clothes, &c.; 2 of opium adulteration; 2 of forged or altered deeds; 2 of suspected adulteration of wheat flour; 1 of the adulteration of soda water by sulphuric acid; 1 of the sale of damaged rice; and 1 of the adulteration of bread.

5. Apart from the cattle cases, arsenic and dhatura were, as usual, the most commonly-employed poisons: in 26 cases of poisoning, arsenic was found to be the cause of death, and in 22 dhatura. There was nothing worthy of remark in

the arsenical cases. Two of the dhatura cases were perfect examples of the cold-blooded and heartless system pursued by the regular professional poisoner.

6. Three men and a boy were travelling, last May, from Bombay towards the N.-W. Provinces. They were joined at Hurdah by a man, who ingratiated himself by pleasant companionship, and every day as they travelled evinced his good-fellowship by making sherbet for the whole party during their mid-day rest. At length, at a solitary spot on the banks of a stream near Bansa, in the Dumoh District, they drank his sherbet for the last time: the three men were found dead, and the boy roaming about close to their bodies in the restless delirium caused by dhatura. A man said to have been the poisoner was apprehended soon after in the Hoshungabad District, and on him was found a carefully-made powder of dhatura seeds, mixed with a little flour and sugar. I detected dhatura in the stomachs of all the three victims of his heartless treachery,

7. In the other case six men were seen to encamp near a village in the Moozuffernugger District. After a time three of the men were found lying dead on the spot where they had encamped, their companions having disappeared. I found dhatura to have been the cause of death in all the three victims,

8. In four cases opium was found to have been used to effect death; and in three cases aconite-root.

9. Two references worthy of remark were made to me by the Officer Commanding the Ghoorkha Regiment at Almora. He reported in May that a number of the sepoys of his regiment had suffered from vomiting, headache, and great giddiness, after eating bread made of wheat-atta purchased from certain bunyahs in the Almora Bazaar, and at the same time sent me a specimen of the flour suspected of being poisoned. I could detect no foreign substance in the flour sent, but

informed Colonel Saunders that, from the symptoms detailed, I believed that his men had been using flour which had been rendered injurious by an admixture of darnel (*Lolium temulentum*) seeds; and I advised him to insist on their purchasing the wheat, and having it ground for themselves. Apparently this was not done; for, in July, some of the men were again taken ill, and another specimen of atta was sent me for examination. In this I found, by the aid of the microscope, numbers of broken pieces of the peculiar beard of the darnel seed.

10. I had this year occasion to observe similar symptoms produced in one of my own servants at Nynce Tal, from eating wheat-flour purchased in the Nynce Tal Bazaar; and I suspect that, as in the Khadir lands of the Moozuffernuggur District, this deleterious grass is gaining a hold in the wet or over-irrigated lands in the Bhabur. The weed is recognized as injurious by the cultivators in the Moozuffernuggur District, and goes under the name of "*machnee*." I am not aware whether it has yet attracted attention in the Terai and Bhabur: it is an old and, in England, a classical enemy of the careless cultivator:—

"Between the time of the wind and the snow,
All loathliest weeds began to grow;
Thistles, and nettles, and *darnels* rank,
The dock, and henbane, and hemlock dank."

Its effects are luckily never fatal, but are decidedly troublesome; and it is far from desirable that it should be allowed to secure a baneful ascendancy amongst the crops of any locality.

11. The remedy for the presence of the seed amongst wheat is to sift the grain through a sieve, the holes of which are small enough to retain the wheat but large enough to allow the darnel seed to pass through. I give here a correct representation of the grass, as it may be useful to District

Officers to be able to recognize its presence in cultivated lands:—



12. I have a few remarks to offer on the large increase in the references made to me bearing on cattle-poisoning. During 1867 only one such case was sent up, and during 1868 only five cases; while during the past year the number ran up to 117, or 42·2 per cent. of the whole number of cases referred. As the subject is of some consequence, I shall be excused if I

enter somewhat into detail regarding the localities from whence I have received the cases, and the features of the cases themselves.

13. The whole of the cases have been contributed by eight districts—seven in the North-Western Provinces, and one in Oudh. By far the largest numbers were received from Ghazee-pore, Azimgurh, Allahabad, and Jounpore. The exact figures are as follow :—

Ghazeepore,	...	43	|	Mirzapore,	...	5
Azimgurh,	...	26	|	Benares,	...	3
Allahabad,	...	19	|	Fyzabad,	...	2
Jounpore,	...	18	|	Meerut,	...	1
				Total,	...	<u>117</u>

14. The circumstances of the cases were almost invariably the same. A chumar is charged with having placed some stuff before a bullock or cow in a surreptitious manner, and the stuff is sent to me for analysis; or a chumar is suspected of being concerned in cattle-poisoning, his person and his house are searched, and certain suspicious substances, said to have been found, are sent for examination. In only two cases I had information that the death of any animal had resulted from poisoning, and in only one of these two (a case in the Cantonment Magistrate's Court at Meerut) was a portion of the viscera of the poisoned animal sent to me for examination.

15. In 28 of the 117 cases there was no evidence of any poison being present; indeed, many of the cases seemed to have been very clumsily trumped up. For instance, in case No. 49, from Allahabad, a bunch of castor-oil leaves had been rolled up; in case No. 89, from Azimgurh, a piece of arsenic as big as a walnut was enclosed in some leaves—it being almost as probable that a bullock would chew it as that he would chew a piece of quartz of the same size; in case No. 154, from Ghazeepore, some pounded glass was submitted as the poisoning agent; in case No. 159, from Jounpore some alum; in case No. 165, from Azimgurh, some common salt; and so on. Even in those cases where I detected arsenic, I frequently found it in so small a quantity that it could not possibly have

been given by *an expert* with the intention of causing the death of a bullock or cow.

16. In a majority of the cases, however, arsenic was found made up in such a quantity and in such a form as would cause the death of and be readily eaten by a bullock or cow. The poison was usually made into a fine powder, and kneaded up into a ball with some coarse atta; this ball was then rolled up in some grass, or leaves of bajra, or mowha, or castor-oil. As I have already said, only two cases were reported in which the death of any animal resulted from eating portion of a poisoned ball; and, although I am far from asserting that isolated cases of cattle-poisoning do not occur, yet several collateral circumstances make me inclined to doubt that the large number of cases referred to me this year is to be regarded as evidence of systematic poisoning.

17. In the first place, I think it strange that so large an influx of cases should have occurred immediately on the issue of a circular on the subject by the Inspector-General of Police (No. 3, dated 4th March, 1869).* From the 1st January to the 1st April, I received only 8 cases, and they formed 13 per cent. of all the cases I received during the first quarter of the year; while, on the other hand, from the 1st April to the 31st December, no fewer than 109 cases were submitted, and they formed more than 50 per cent. of all the cases sent in from the whole of the North-Western Provinces, Oudh, and the Central Provinces. No doubt this great increase may be explained by extra zeal and vigilance on the part of the police of those districts which are supposed to be peculiarly infested by cattle-poisoners; but it is also just possible, especially in a year of agricultural distress and increased mortality amongst the cattle of the Province generally, that this is not the case. Certainly unexceptionable statements of mortality amongst the cattle are required to confirm the impression to which the records of my past year's work might at first sight give rise; and besides this, it is, I think, absolutely necessary to make sure that any

* Calling upon District Superintendents to make close enquiries into the subject of cattle poisoning.

undoubted increase of mortality amongst the cattle of a district was not caused by one of those mysterious epidemics that attack domestic animals, as if in mockery of the protection afforded them by their masters. It is not to be expected that ignorant peasantry can discriminate between natural disease and the effects of poison; and it only requires a *suggestion* to make them take up the idea that their cattle are being poisoned, or done to death by witchcraft or any other means than the hand of Providence.

18. Indeed, amongst the cases sent to me during the past year there were several which show plainly to what extent the ignorant suspicions of the peasantry will exaggerate this matter. In three of them, a simple piece of cloth was asserted to have been used by chumars to cause the death of cattle; and in a fourth, a piece of split bamboo *eighteen inches long* was declared to have been given to a bullock, to have caused purging, and been finally passed through the intestines of the animal, no doubt much to its relief, and to the confusion of the "poisoner." The stick was sent to me to report what poison could be on it!

19. If I may be permitted, I would suggest the following procedure as a crucial experiment to determine the existence of this presumed cattle-poisoning. With very few exceptions, the poison used or said to be used is arsenic. Now, it is no difficult matter to ascertain whether an animal has died from the effects of arsenic or not; I would therefore suggest that when the civil authorities of a district are apprised of a sudden increase in the mortality of the cattle of a particular locality, an intelligent Native doctor should be sent from the nearest station to make a *post-mortem* examination of a few of the dead animals; and that he be instructed to secure in a bottle a piece of the third stomach, of the liver, and of one kidney, of two or three of the animals he examines, making the bottles over to the Magistrate for despatch to me. Large pieces are not required to determine the point. The pieces taken from each animal may be accommodated in a clean pickle or tart-fruit bottle, and a little strong country spirit poured over them to

prevent decomposition. Until this is done it will always be open to doubt whether increased mortality arises from disease or from poisoning, as it is always open to designing men, or ignorant sufferers from a prevalent epidemic, to accuse some social pariah of the crime of poisoning the village-cattle. This, at least, is just as likely to result in the India of to-day as the burning of decrepit old women under similar circumstances in our own country two hundred years ago.

I append, in a tabular form, a list of the sources of reference during the past year :—

STATEMENT OF CASES REFERRED TO CHEMICAL EXAMINER DURING 1869.		RAILWAY POLICE 1		CENTRAL PROVINCES.	
NORTH-WESTERN PROVINCES.		OUDH.			
Ghazepore, ...	45			Jubbulpore, ...	4
Allahabad, ...	36			Behaspore, ...	2
Azimgurh, ...	29			Seonee, ...	2
Jounpore, ...	20		10	Nursingpore, ...	2
Meerut, ...	11		9	Nagpore, ...	2
Muttra, ...	7		6	Dumoh, ...	1
Moradabad, ...	7		5	Baitool, ...	1
Mirzapore, ...	7		3	Bhundara, ...	1
Jhansi, ...	7		2		
Benares, ...	6		1		16
Budaon, ...	5		1		—
Boondshuhur, ...	4		1		8
Allygurh, ...	4		1	Military Dept., ...	—
Banda, ...	3		1	Foreign Dept., ...	3
			39	Total, ...	277
					210

W. WALKER, M.A., M.D.,

Chemical Examiner, N.-W. P.

Reply of Government, North-Western Provinces, to Chemical Examiner, N.-W. Provinces, Oudh, and Central Provinces, dated Allahabad, the 11th February, 1870.

SIR,—In reply to your letter No. 3, dated 26th January last, I am directed to say that the Lieutenant-Governor considers the report of the Chemical Examinations conducted during 1869 to be interesting and instructive, and I am to add that attention will be usefully drawn to it by its publication in the Selections from the Records of this Government.

2. Special orders will be issued on paragraphs 10, 11, and 19.

I have, &c.,

F. HENVEY,

Offg. Secy. to Govt., N.-W. P.

OUTBREAK OF EPIDEMIC CHOLERA IN THE JOUNPORE JAIL, BEGINNING ON THE 3RD FEB- RUARY, 1870.

*Report by E. A. Fitzgerald, Civil Surgeon, dated Jounpore, the
24th April, 1870.*

History of the outbreak.—The occurrence of epidemic cholera in the North-Western Provinces, so early as the first week of February, is altogether unusual. In looking over Dr. Bryden's tables in his Treatise on Epidemic Cholera, I cannot find a single instance, during the fifteen years ending 1868, in which it could be said that the disease prevailed as an epidemic in any Jail in these parts of India at this season of the year. The first case occurred on the 3rd February, and proved fatal in $54\frac{1}{2}$ hours. A second case occurred on the 6th, and a third on the 8th. But it was not till the 9th February that the disease declared itself epidemic. On that day ten prisoners were attacked, and, during the five subsequent days, sixty-five other cases were admitted. On the 15th there was a lull; on the 16th three men more were attacked. After that date the disease declined rapidly. The last case occurred on the 23rd February. From the 3rd to the 23rd February there were altogether eighty-six cases of cholera, advancing to the stage of collapse, and five of cholérine,—total ninety-one. During the month of March eight additional cases occurred, five advancing to collapse, and three stopping short at choleraic diarrhœa—grand total ninety-nine. Of these thirty died, and sixty-nine recovered, giving a percentage of—

Recoveries	...	...	...	69·70
Deaths	...	...	...	30·30

If the cholérine cases be excluded, and those of collapse only be taken into consideration, the percentage will be—

Recoveries	67·04
Deaths	32·96

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As soon as it became evident that cholera was epidemic in the Jail, I resolved on removing the healthy prisoners into camp, the more hopeful of success in checking the spread of the disease by such a movement, as it was not prevalent outside the Jail premises. I put myself in communication with the Magistrate, and, having obtained the extra Police guards necessary for the safe custody of the prisoners, I was able, by the evening of the 10th February, to remove nearly two hundred healthy men into camp. The place selected for an encampment was a tope of mango trees, about a mile to the south of the Jail. I was obliged to be satisfied with this shelter, as the Magistrate had neither tents nor any empty buildings to place at my disposal. Each prisoner when going out had, besides his personal clothing, a taut to sleep on, and two blankets for covering purposes. The weather being mild, there was no suffering from exposure. For five days after removal from the Jail, men were sent in from camp attacked with cholera. On the 11th there were thirteen cases; on the 12th, two; on the 13th, eight; on the 14th, one; on the 15th February there were two cases of cholera, —in all twenty-six. From the 16th February the camp was quite free from the disease. In the Jail after the 17th February there were only four cases, the last occurring on the 23rd. All signs of the disease having disappeared, I brought the prisoners back from camp to the Jail on the evening of the 28th February. On the 6th March a fresh case occurred; and up to the 15th seven other prisoners were attacked. Of these five were cases of collapse and three of cholera. Three out of five of the collapse cases died. Of them two died actually in collapse; the third, a lad of sixteen, after rallying from collapse, went through a variety of sequelæ, and did not die till the 31st March, —more than nineteen days from date of attack.

Cause of the outbreak.—After speaking of the severity of the disease and the number of its victims, the question naturally arises,—What caused the appearance of so formidable a type of cholera in the Jail at so unusual a season of the

year? The question as to the cause of cholera is one that has often been asked, at other times and in other places, and has as often been unsatisfactorily answered. I regret that it is out of my power to solve so difficult a problem. That it did not spring from contagion, may be accepted as a fact, inasmuch as no man had been admitted into the prison who was suffering from the disease, and by whom it might have been communicated to others. The first person attacked was a strong, healthy young man, a sweeper, who had been in Jail upwards of five months; the second had been in Jail nineteen days; the third, two months and twenty-two days; the fourth, one month and four days; and so on. It might, however, be argued that, after the disease had once made its appearance, it was propagated by contagion, as thirteen cases of cholera advancing to collapse, and two of cholera, occurred among the prisoners attending on the sick in No. 9 Barrack, which had been formed into a Cholera Hospital. To this I would reply, that, if such doctrine be really true, it appears passing strange that the type of disease produced in the very centre of contagion should have been far less formidable than that contracted elsewhere; for, of the fifteen men attacked in No. 9 Barrack, two only died, while ten out of the twenty-six cases sent in from camp proved fatal. Nor could the outbreak of the disease be ascribed to want of cleanliness or defective sanitary arrangements. The drainage of the Jail is remarkably good; no water or other liquid matter can lodge for long in its neighbourhood, owing to the natural fall of the ground towards the drains; and all filth is daily removed from the premises by prisoners of the sweeper caste, and buried at a distance, with a view to future use as manure in the garden.

Dr. DeRenzy, the Sanitary Commissioner of the Punjab, in his report of that province for the year 1868, appears to consider that the poison of cholera is generally, if not always, conveyed into the system through the medium of the water we drink. In fact, if I understand him aright, he maintains that the poison actually filters from choleraic excreta through

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the soil into wells used for drinking purposes, and so becomes a source of the disease. Such doctrine is utterly untenable as regards the outbreak in the Jail. During the six years ending 1869, there have been only seven cases of cholera in the Jounpore Jail; and they occurred in August last year. Each of these cases, as soon as the disease showed itself, was brought to No. 8 Barrack for treatment. If any accumulation of choleraic excreta for infiltration through the soil occurred, it must have been in the compound of that barrack. Yet but one solitary individual was attacked in this part of the Jail, and he only after thirty-two cases had already occurred elsewhere. I do not deny that the poison of cholera may be conveyed into the system by the water we drink. All I mean to say is that I do not believe water to be the main source of the disease.

I am also persuaded that the use of bad or unwholesome food was not the cause of the epidemic. On the 1st December, owing to the dearness of wheat, barley and jowar, I directed the Jail Darogah to make Indian corn, which was cheap in the bazaars, and which is the usual food of the poor at their homes, the staple article of diet for all healthy prisoners, until the spring harvests should be reaped. This was done till the 7th January, 1870, when the Deputy Inspector-General of Hospitals visited the Jail on his annual tour of inspection. He objected to the prisoners being mainly fed on cakes made of Indian corn, on account of its being deficient in nutritive properties, and likely in consequence to lower the standard of health. I myself had remarked that, from the time Indian corn had come into use on a large scale, diarrhoea and dysentery were more prevalent than before. As soon, therefore, as the Deputy Inspector-General of Hospitals made his remonstrance, I issued orders to the effect that all healthy prisoners were to receive a half ration of Indian corn and a half of wheaten flour, instead of all Indian corn, and that those who were in any way weak or infirm were to have wheaten flour only; Indian corn was at no time used in the Hospital. These orders had been in force for four weeks before the first case of cholera occurred. From that

time even the half ration of Indian corn was discontinued, and, while cholera prevailed, wheaten flour alone was given to the prisoners. Although not disputing the possibility of the cholera poison being occasionally conveyed into the body either through food eaten or water drunk, my own belief is that the cause is generally resident in the atmosphere. Both before and during the prevalence of the late epidemic, the weather was unusual. In the second week of February the leaves of the trees were falling fast, the corn was yellowing in the fields, the days were sultry, and the thermometer often showed a temperature ten degrees higher than at the same time in previous years. Beyond a shower on the 11th February there was no winter rain. Dr. Bryden maintains, with much show of reason, that the cholera miasm is generated in the low marshy grounds of Bengal Proper, and then wafted along by easterly winds to the Upper Provinces, to be there vitalized by moisture. Though this theory will not explain the occurrence of the first three cases in the Jail during the prevalence of a westerly wind, and although that wind had been blowing for three weeks before, it accounts fairly for what came to pass afterwards. On the 9th February, the wind was easterly. At half-past four that afternoon clouds gathered in the east. There was loud distant thundering, and every appearance of a storm. The storm did not come, but a few drops of rain fell. There was heavy rain, and a fall of hail, four miles off. On that very day, cholera began to rage as an epidemic in the Jail. The wind remained easterly on the 10th, and that night there was again some distant thundering. On the 11th heavy clouds came up from the eastward, and at 1 P. M. there was a sharp shower of rain. The wind continued easterly without intermission from the 9th till noon on the 13th, and all this time the epidemic was at its height. At midday on the 13th the wind resumed a westerly direction, and thirty-six hours afterwards the disease had pretty well ceased to be epidemic.

Measures for preventing the spread of the disease.—With a view to preventing as far as possible the spread of the disease,

I had, as already mentioned, all the healthy prisoners that, could be spared moved into camp. The Magistrate provided a place in the city for the Hawalatees. The four new barracks were thus emptied of occupants, large fires were lighted between the outer and inner walls of the prison, as well as in every barrack and separate compound. In addition to this, the whole place was daily fumigated with benzoin and sulphur. All clothes and bedding soiled by cholera patients were burnt, as well as the corpses of those who died from the disease. The excreta were carried away and buried in a plot of ground not used for cultivation, and far away from drinking wells. The alarm caused by the outbreak and the depression of spirits among the prisoners were noteworthy. Few of them were willing to attend on the sick; many attributed the occurrence of the disease to supernatural causes. Somehow or other a belief had sprung up that it was due to the spirit of Bullun Aheer (a prisoner who committed suicide in December last, the night before he was to be executed), prowling about the premises, and that, unless some offerings were made and worship gone through, the spirit would never depart. As a special privilege, I allowed all the prisoners to smoke while the cholera lasted, and it seemed to have a very good effect in cheering up the men.

Treatment.—Two years and a half ago, on a rather limited experience, I made bold enough to state that I was persuaded of the correctness of Dr. George Johnson's views as to the nature of cholera, whatever objection might be taken to his plan of treatment. After a further experience of two epidemics, the second affording me the large number of ninety-nine cases, I am convinced of the truth of what I then advanced. In the treatment of cholera, two great points should be borne in mind; firstly, that the vomiting and purging are salutary processes, really efforts of nature to throw off a poison from the system, and should on no account in consequence be interfered with; secondly, that the loss of pulse is not due to ordinary debility, but to stricture of the

minute blood-vessels in the lungs, whose muscular fibre is irritated by a poison, probably of a miasmatic nature, circulating in the blood. As far as I am concerned, I now consider it thoroughly proved that in cholera there is no danger to life from the vomiting and purging. The real danger arises from impeded circulation, and consequent suppression of the bile and urine. As long as a patient is pulseless, and passes no urine, the cessation of vomiting and purging, instead of being in any way advantageous, rather denotes the ebbing of vitality, and is too generally of the worst omen. In all the collapse cases that proved fatal during the late epidemic, vomiting and purging had ceased without the urine or pulse being restored ; and the sooner the vomiting and purging ceased, the more rapidly did the cases proceed to a fatal issue. In many of these cases, even repeated doses of castor-oil, though retained in the stomach, could not recal the action of the bowels. The poison had done its work. Life was ready to depart. But the beneficial effect of the extraordinary action of the intestinal canal in cholera is not confined to the ejection merely of a special poison from the body. It also exercises a compensating influence for the functions of the liver and kidneys, which are in abeyance. There can be little doubt that the noxious elements, which under ordinary circumstances would be carried off from the system through the agency of the bile and urine, are by this means in part if not wholly removed. Many of the prisoners that recovered, passed no urine for sixty and even seventy hours. But in all these cases the vomiting and purging steadily continued. To interfere then with these processes is not only to check the expulsion of the special poison of the cholera, but also the elimination of those constituents that usually go to form urine and bile. I have noticed it over and over again during the late epidemic, that in proportion as the pulse and urine returned so did the vomiting and purging cease. No medicine was, as a general rule, required to check these processes when the proper time for their cessation had come. Just as certainly as day

follows night, did the vomiting and purging stop when once the pulse and urine were restored. The one was a consequence of the other. At first I had some difficulty in persuading the Native Doctors and Hospitals attendants that the vomiting and purging in cholera were not only not dangerous, but actually good for the patients, and that the real source of apprehension was from failure of the circulation and suppression of urine. When, however, they saw all those cases turn worst in which the vomiting and purging ceased without return of the pulse and urine, they became more reconciled to this doctrine. Even the patients themselves caught the idea after two or three days. Often when I asked a man whether he had passed any urine, he answered, with a certain degree of satisfaction, "No, but I am being purged freely," evidently feeling that while that process was going on he was comparatively safe, and that there was great hope of ultimate recovery.

Convinced as I am that the vomiting and purging in cholera are salutary, and that the loss of pulse does not indicate ordinary debility, I scrupulously avoid the use of opium and stimulants of every kind. Nay, in true cholera, from the very time the rice-water stool is established, I look upon opium as little else than a poison, not only checking the elimination of what is harmful, but also tending to store up a formidable hoard of secondary symptoms and sequelæ full of danger to the life of the patient. In the same way when the pulse begins to flag, that flagging not being due to ordinary debility, stimulants are contra-indicated, and if used are as mischievous as opium. The plan of treatment I follow is simple and easy of application. The great object is to endeavour to counteract the effects of the miasmatic poison circulating in the blood. The poison has a powerful influence on the nervous system, through which, if unimpeded, the functions generally of the human economy are soon deranged. To enable the nervous system to resist its baneful influences, strong nervine tonics should be repeatedly administered. The limited supply of quinine at my disposal

being soon exhausted, I resorted to strychnia, of which I had long since formed a good opinion. My practice during the late epidemic in the Jail was to give one-twelfth of a grain in solution every twenty minutes, or half an hour, until half a grain was taken. The dose was then given every hour, or every second or third hour, according to the urgency of the case. The following was the prescription generally used:—

R. Strychniæ	...	...	gr. i.
Acid. Sulphuric. dil.	...		dr. ii.
Aquæ	...	...	dr. ii.

Mix twenty drops in two ounces of water for a dose. Where a good supply of quinine is at command, I would prefer a combination of quinine and strychnia, to the extent of three or four grains of the former in each dose. In cholera there is a remarkable tolerance of strychnia. Some of the patients had as much as a grain and a half given them in twenty-four hours, without showing the least sign of any outward symptoms. It is probable that the hypodermic injection of strychnia, before the pulse was lost, would be attended even with greater benefit than if taken by the stomach. I had no means of testing this method of exhibition on the present occasion, but, if ever an opportunity presents itself again, I shall certainly do so. In addition to giving strychnia and quinine in cholera, I am in the habit of using acid drinks largely, and consider them an essential part of the treatment. What their precise action may be in this dread disease, I am unable to say; but I have no doubt of the beneficial effect exercised by them. The acid mixtures principally used were made up of vinegar, lime-juice or sulphuric acid, each separately mixed with water in such quantity as to give it a decidedly acid taste. The patients preferred the vinegar and lime-juice mixtures, and often craved for them. Two or three drachms of nitrate of potash and a little bitartrate of potash were mixed with each bottle of acid mixture, and an ounce given to each patient every fifteen or twenty minutes. Camphorated water was the ordinary drink allowed

in the Hospital, and every man got as much of that as he wished. When the suppression of urine was prolonged, fomentation of the loins and dry cupping were resorted to. The same was done to the chest when there was any great sense of oppression and the respiration became laboured. In three cases I tried leeching, and the cupping lancets, but was able only to obtain a few drops of blood. It is far more easy to talk of bleeding a cholera patient in collapse, than to succeed in doing so. When cramps were present the parts were rubbed with ginger powder. If the diarrhœa stopped without the pulse and urine being restored, castor-oil in half-ounce doses was always given every hour until the purging returned. In a few cases the castor-oil had not the slightest effect, and these invariably proved fatal. I have never used emetics in cholera, nor do I approve of their use. The nausea and prostration they are likely to create are not at all desirable in the treatment of the disease.

In the way of diet, I only allow the use of liquid food, such as sago, arrowroot, thin dal, strong soups, &c., while cholera is actually present. When the disease has been overcome, any debility or other symptoms that may remain should be dealt with in the usual way. If diarrhœa be present, there is then no objection to the use of opium or other astringents; and, if the energies require rousing, stimulants, alcoholic or otherwise, may be employed. As a rule, however, the safest plan would be not to use opium or stimulants until thirty-six or forty-eight hours after collapse had passed off, and no doubt remained that the cholera poison had been entirely cleared out of the system.

Out of ninety-nine cases treated in the manner above indicated, three only suffered from secondary symptoms. Of these two men (one named Khoobun, the other Elahee) were so well on the 14th February that I discharged them from the cholera list, and placed them under the head of debility. On the morning of the 16th February I had to re-admit them

for secondary symptoms. They were both labouring under delirium, accompanied by congestion of the eyes. I had their heads shaved and blisters applied to the scalp and temples; cupping of the chest was also resorted to. The blisters produced no effect on Khoobun, and although he had a good pulse at the wrist only a few drops of blood could be got away by the cupping glasses after the application of the lancets. He died by half-past five in the evening. In Elahce's case the blister had some effect, but he continued delirious and had a distressing hiccup for several days. By constant watching and careful treatment he gradually recovered, and is now as well and strong as ever. The third case was that of a lad of sixteen, named Gokool. He was attacked with cholera on the 12th March, and by the 16th appeared pretty well. A couple of days afterwards secondary symptoms set in. At first there was delirium, with congestion of the eyes; then a very painful rash appeared on the greater part of the body. Finally an erysipelatous inflammation broke out on the face, and the left parotid gland became highly inflamed. The patient, worn out by a constant succession of outward sequelæ, succumbed on the 31st March. To such cases as these I consider the term *cholera secondaria* peculiarly applicable, at least quite as much so as *syphilis secundaria* is to the sequelæ of a chancre.

Behaviour of Hospital attendants and prisoners.—One of the most serious difficulties in an epidemic outbreak of cholera is to ensure efficient attendance on each and every one attacked. When so many and such urgent calls spring up so suddenly, it is no easy matter to call into existence in a moment all the arrangements one would desire. The uninitiated and ignorant cannot be turned into good Hospital nurses in a day. I did the best I could with the material at my disposal. As the work was much too heavy for the Native Doctor of the Jail, I called in the Police Native Doctor, Imam Khan, and two compounders—one from the Police, the other from the Dispensary. One Native Doctor and compounder had always to be present looking after the sick. These men all

performed their duties zealously and to my satisfaction. One of the prisoners, a man named Beharee, who had been usually employed as a Hospital orderly, was invaluable during this trying time. He spared himself in no way, and was always ready to do what lay in his power for the comfort and benefit of the suffering. Each patient had a separate man appointed to wait on him, and the severer cases had two, and even three attendants if necessary. But, with few exceptions, there was a great unwillingness on the part of the prisoners to attend on those of their companions smitten with cholera. The attendance, being thus generally compulsory, was often performed in a faint-hearted way.

Concluding remarks.—Considering the severity of the outbreak, I think it a matter of congratulation that the mortality is as low as 30·30 per cent. I attribute this not altogether unsatisfactory result to the manner in which the disease was dealt with. Nature's efforts at cure were not thwarted. The great object kept in view was to assist the "*vis medicatrix nature*" in the best way possible. Since I adopted the views I now hold as to the nature of cholera I have been far more successful in treating the disease, and am hopeful that, by persevering endeavours, even better results will be obtained in the future. I say it, but not in any spirit of self-glorification, that it is my firm conviction that, had I used opium and stimulants in good orthodox fashion, I would probably have had to record sixty-nine per cent. of deaths, instead of sixty-nine per cent. of cures. If Johnson's explanation of the nature of cholera were more generally accepted, and some such treatment as I have endeavoured to indicate in the foregoing remarks followed, I am presumptuous enough to declare it as my belief that the results would not be quite so ghastly as those now too generally chronicled.

E. A. FITZGERALD,

Civil Surgeon.

PROCESS OF TANNING AND CURRYING LEATHER AT THE CAWNPORE GOVERNMENT TANNERY.

Notes by Captain John Stewart, R. A., Commissary of Ordnance in charge of Government Tannery, Cawnpore.

THE tannery consists of a long building, in the floor of which are masonry pits plastered with chunam. The floor is on two levels ; the lower contains the beam house and lime pits, where the hair and flesh of hides are removed by the action of milk of lime, and also the bark taps and spenders, where the bark is infused. The latter are large masonry pits, with false bottoms of wood, through which the infusion drains off by plug-holes into a well adjoining, where a pump is fixed, and the liquors are raised and carried into the tan pits on the higher level ; these are the pits in which the hides are tanned, and they drain off into the spenders and taps on the lower level.

The currier's shop is a long two-storied building ; the lower story is furnished with currier's beams and scouring tables of stone, where the hides are shaved and scoured preparatory to being oiled and dubbed. The upper story is for finishing the currying process. It is furnished with wooden tables for setting out and dubbing the hides, which are hung up to dry on battens suspended from the roof. There are arrangements for hanging the hides on both stories.

The hides and skins tanned and curried are—buffaloe, bullock and cow, and goat and sheep skins. Buffaloe hides are obtained from the slaughter markets of Cawnpore and adjacent towns and cities. They are either green direct from the butcher or dry salted. They are best suited

for tanning in the former condition, as the salt cure of the North-Western Provinces is inferior and imperfect, absorbing so much moisture that in the damp heat hides are apt to rot ; while the dry heat of the climate so hardens and contracts the fibres of the skin, that much labour is required to loosen the pores to receive the lime and tan. Great precaution, therefore, is necessary in the selection of dry salted hides, especially as native dealers lay on the kharee or salt very thick to gain weight. If the hides are fresh slaughtered, and have been lightly cured, they soak down to a natural state ; but if they are stale, that is, have been cured some months, and are besmeared with kharee, the tanner should reject them for they will very likely decompose in soak before becoming soft.

The buffalo is the only available hide that will produce leather thick enough for harness work in this country, and there is no doubt that much of the inferiority of country leather arises from the poorness of the skin of that beast. It is poorly fed, not generally cared for, and usually killed when too old to breed or give milk.

The hide of the male buffalo is too coarse, and it gets such bad treatment in the plough or cart that it is generally full of sores and goad marks. In large towns there is a market for buffalo beef for the low caste and poorer Mussalman population, and also for grease, and younger and better cattle are slaughtered ; it is from these that the local tanners select their hides for the finer uses of harness, saddlery and accoutrements.

Many good hides are ruined by the butchers in flaying, from inefficient arrangements in the slaughter-houses and from injudicious use of their tools.

Bullock and cow hides are also procured green and dry
Bullock and cow hides. salted, and the same care is necessary
for selection. Those slaughtered in
the Commissariat Department are usually the best ; but they

are small and unfit for any thick work. This class of hides is much exported to England, and extensively used there for boot and shoe upper leather, for which it is much esteemed. In the English market there is great objection to North-West cure. Patna, Dacca, and Durbungah cures, though the hides are no better, are far preferred. The finest hides of this description are those killed at Agra, Delhi and Meerut; much damage is done to the hide by branding on the butts and shoulders.

Goat and sheep skins are always obtained green from the local market. Goat skins are generally very good; sheep are poor and small.

Lime is brought into Cawnpore chiefly from the Banda District, and is used for loosening the hair and flesh of hides and killing the grease. It should be taken in lumps, unslacked.

Bran is obtained from the Commissariat Flour Mills or from the bazaars, and is used to produce an acid, when fermenting in water, which plumps up the skin, opens the pores, and takes out the excess of lime.

Babool bark is obtained locally, the wood being extensively used for firing. The bark season extends from January to June, that is the spring of the year, when the sap is upon the tree; from six to ten year old trees are the best for bark. It should be peeled from the trees immediately after they are cut down.

The natives are rather careless in this particular, and ill use the bark; for, to get it separated from the wood, they beat it with wooden mallets, and gash it about to get it loose; they then peel it off by hand; each gash is a wound in the bark through which the tannin evaporates. In England a peeling iron is used, and long strips of bark are taken off without

any beating; but of course this must be done before the sap has dried. The tannin is contained in the white or inner stratum of the bark.

The tannin is stronger in babool than in oak bark, but the quality is not considered so perfect. Experiments tried lately in England under Professor Abel, the Chemist to the War Department, proved it to have keeping qualities quite equal to oak bark, if not superior; and thus it is valuable as a tanning agent. It has more colouring matter, that is, gives a reddish liquor, which is somewhat against it, and great advantage is found from mixing with it

Myrabolams.

“Hurr” or “Bahaira” (the Myrabolams of commerce, the dried fruit of “*Terminalia Chebula*”) which is plentiful in the markets, and is used extensively as a dye. The liquor from the “Hurr” or “Hurra” is powerful in tannin; and though it is not reputed to be of a quality that would make good leather of itself, it is highly esteemed in England to mix with other tanning agents, owing to the bright colour it imparts, and herein is its usefulness in combination with babool. The “Hurr” is a product of the forests, and is very common, but the natives of Cawnpore use it only as a dye.

Sumach is another tanning substance, which has been used

Sumach.

in small quantities here, but only for finishing and imparting colour. It is imported from England, and is therefore very expensive. It will not be much used hereafter, as the myrabolams is found to answer quite as well.

Kutch is a very powerful astringent, and rich in tannin.

Terra Japonica, or kutch.

It is the inspissated juice of “*Acacia Catechu*,” the “Khair” of the forests, and is used by the natives for a dye, and also eaten with pawn. Its tannin is three or four times stronger than that of oak, but of poor quality; the leather made of it is dark in colour and does not last well, but it tans so quickly, and

therefore so cheaply, that it is used extensively in England; such leather is believed to be unsuited for wear in this climate. At Cawnpore the kutch is used only for darkening colour, when that is required.

Divi Divi is the seed-pod of a shrub that is a native of South America, but grows well in the Divi Divi. Madras and Bombay Presidencies; it is called the "Libidibia Corriaria." The pod is exported to England from Bombay, but in small quantities. The tannin is strong, and considered good for mixing with barks. The shrubs were grown from seed at Cawnpore, and a few are still living. Government has now sanctioned a plantation of it, and some hundreds of plants are doing well in a nursery. It has been little used as yet, but will probably be an useful auxiliary in tanning.

The barks of sal, asseyna, and amultas are known to Other tanning barks. contain tannin, and experiments are being carried out with them.

The only oil used for currying is cod-oil; it is obtained from England, and is the best known Cod-oil. for the purpose. Indian fish oils would answer if more carefully extracted.

Mutton or goat tallow is used either alone or mixed with Tallow. cod-oil; in the latter state it is called Dubbing. dubbing, which is applied to all leather intended for harness or straps, and like pliable purposes.

Native tanners and curriers are all of the Chumar caste. The former are Runghias, a trade Labour. class of that caste. Such labour is very plentiful about Cawnpore. The wages vary from Rs. 9 to Rs. 5 per mensem according to skill.

The hide when received green is only washed and put into a pit of milk of lime; when it is dry Liming. salted it has to be soaked in soft water before it can go into lime. It is often so hard dried that it

will not soak down, and heavy fulling stocks are required to break it down and soften it.

These stocks have not as yet been set up at Cawnpore for want of power to drive them ; and
 Stocks. until they are used, the tanning of dry hides cannot be satisfactorily carried out.

The hides are first put into a weak lime, and then into a stronger, until the hair is loosened and the skin plumped up ; they are then placed over tanners' beams made of wood and convex, so that a two-handled, blunt, concave knife can be

worked over them to push off the
 Unhairing and fleshing. hair ; when that is done the hide is turned over on the same beam, and the flesh and fat which was left on and has now become loosened by the action of the lime, is shaved off by means of a two-handled concave fleshing knife, which has a sharpened edge, and takes off a greater or less shaving as required. Some dexterity is needed in this work, as a slip of the knife may shave too deep and cut into the hide. The most skilled tanners are employed in this, and are called beamsmen.

There is great diversity of opinion in the trade as to the use of lime. It is generally allowed that it is an evil, but a necessary one. It is not good for leather, but the hair and flesh must be removed, and there is no safer way of doing so. In France and in some American tanneries they remove the hair by sweating the hides and producing partial decomposition ; but this would be too dangerous in a climate like that of India.

Lime being an evil, it becomes necessary, after it has done its work, to obliterate all trace of it in
 Grainering or bating. the fibres of the hide ; and this forms the second process of the tanner, and is called "grainering" or "bating." Sole leather does not require this process, but for all harness or dress leather and for every soft purpose it is

essential. The hides, after being unhaired, fleshed and washed, are thrown into a pit called
Bran grainer. a "grainer," in which bran and water have been allowed to ferment; the acid thus produced removes the lime from the fibres of the skin, and loosens and distends the pores, so that they are cleansed of every foreign substance, and brought to a state that is very sensitive to the action of tannic acid.

Much caution is needed in India for the management of "grainers," for if the hides are left a few minutes too long, the acid dissolves the gelatinous fibres, the action being quicker than in England owing to the higher temperature.

Bran being sometimes expensive, the acid or ammonia from pigeon or hen dung has been
Pigeon or hen dung grainer. tried with some success; this is the usual grainer in England, but there has been difficulty in collecting sufficient quantities of it at Cawnpore, and it is usually so full of dirt that bran is preferred.

The native tanners of Cawnpore use a grainer of stale fermenting tan liquor, and it is so in-
Stale tan liquor grainer. expensive that it would be well to introduce it gradually in the Government Tannery. It is notable that the French use stale rotten liquors to bring down or soften their skins, and they are most successful in their soft pliable leathers.

Weak solutions of sulphuric acid have been tried to plump up the skins, but it is more expensive
Sulphuric acid grainer. here. All these grainers give more or less the same results.

An experienced tanner can tell by feeling the hides whether they have been brought down enough and are fit for the next process, which is the tanning proper.

After the grainer and before going to the tan pits, the hides are once more put on the beam, and all dirt, short hairs,

&c., that may have been left in the pores, are driven out by means of the blunt knife.

Babool bark is broken and ground in a "bark mill with breakers." The latter breaks the
 Bark grinding. fibres of the bark, and the mill crushes and grinds it, and renders it easy to infuse in cold water, for the tannin to be extracted. One bark mill is driven by bullock power, but another has now been set up for steam power. The mill resembles a coffee mill on a large scale. The same power which works it is made to work the tannery pump.

Myrabolams is pounded or crushed to a powder, when dry, in a soorkee mill. Other barks and tanning agents are also either ground, crushed, or pounded.

First infusions are made in the bark taps, before described, with fresh cold water; soft
 Tanning proper. water is of course the best both for this and for soaking hides in the first stages in the beam house, and it should be free of lime for the tanning process.

Cheap tanners in England infuse with hot water; but
 Infusing barks. this is not considered good, as it extracts too much of the colouring and other earthy matters, and hastens the development of gallic acid, which is injurious to the liquors.

After a pit of bark has given off a liquor, the half-spent material is cast over into one of the
 Spending barks. spenders, where afterwards a half-spent liquor is put on it, and is freshened up with it, and so on till the bark is quite spent, when it is thrown out. The liquors are continually worked over and over to spend the bark.

The hides are first put into the oldest or weakest liquor.
 Handling. In the state in which they come from the grainer they should not be subjected to the too sudden action of tannin; they are therefore continually handled or taken in and out of the pits. The pits

are called "Handlers." For the first month the hides are handled first hourly, then gradually allowed to remain longer and longer till they are fit for the next stage, which is called

Dusting. "Dusting." The pits are called

"Dusters;" and the hides are put into a stronger liquor with some finely-ground bark thrown in between each layer of 4 or 5 hides, to keep the strength of the liquor up as the hides drink in the tannin.

In the "Dusters" the hides are taken up weekly, and then fortnightly, when new liquors are supplied and fresh bark as before.

The dusting goes on for 3 or 4 months, and then the hides

Laying away. are ready for "laying away." The pits

are now called "Layers," and the hides are put into a new strong liquor, with quantities of fine bark between each hide. In these pits they lay for a month or two at a time feeding on the tannin. The half-spent liquors from layers, dusters and handlers are always drained off on to the top of the spenders, and these after being freshened up are brought up again by means of the pump; thus they are kept moving, which is very important, as it retards the formation of gallic acid, which is injurious to the tannin, and which is too apt to form in hot weather.

Babool bark and myrabolams are infused together, and the addition of the latter adds great strength and takes from the deep colour of the liquors.

The hides are kept 3 or 4 months in layers, and by that

Time taken in tanning. time in general the tannin has struck

right through them, and they are tanned. Buffalo hides take from 9 months to a year from first to last, according to weight and substance; cow hides are tanned in from 4 to 6 months; sheep and goat skins are done in tubs, and take from a month to two months.

The climate of India is favourable to the penetration and combination of tannin with the gelatine of hides. The chief

object to guard against is the fretting of liquors and production of gallic acid, which is more readily given out owing to the atmospheric heat.

After the hides are tanned, they can be dried and stored; but in this country they are apt to dry so hard and to darken so much by the action of light and air, that it is thought best to curry them at once, especially for harness work or dress leather. For sole leather or crop hides no currying is required, but they are "struck," that is, pressed down and rolled, and then stored.

Native tanners carry out the liming process very much like any others; they, however, rather over-lime the hides, according to English ideas. Their grainer is very effectual as far as softening the skin; they then rinse out all moisture, and while the pores are yet open, they work the hides in liquor, and afterwards they sew the hide up into a bag having one end open. This bag is filled with finely-pounded bark and hung up over a pit, from which liquor is ladled into the bag, and there a very strong infusion is formed, which percolates through the pores of the hide. The tannin, therefore, goes right through the hide, but it has not time to make a chemical combination, which is considered so essential for leather.

Native tanning does not occupy more than a week.

For harness and all dress purposes, the currying is a most necessary and important process. By tanning the hide has become leather, but it is not fit for use without currying. This consists of a number of manipulations—stoning, shaving, scouring, oiling, re-shaving or flattening, setting, re-setting, dubbing and finishing.

For ordinary harness leather, a buffaloe hide, as it comes from the tan pits, is hung up till it is half dry, when it is stoned out with a rough stone on a flat table, to straighten it as much as possible.

It is then thrown over a currier's beam, an upright thick plank faced with *lignum vitæ*. This
 Shaving. is the beam board for shaving on.

The hide is smoothed down the board, and the currier with a two-handled shaving knife, having a turned edge, takes off the outer flesh and inequalities from the flesh side; in fact levels the hide as nearly as he can do so, having regard to economy in not wasting leather. The object of this shaving is to get the hide to lie flat on a table, so that the scouring stones and sleekers may touch each part of the surface with equal pressure, and thus thoroughly clean it, as well as press out all dirt and bloom, or earthy deposit from the bark that remains among the fibres.

The preparation and use of the currier's shaving knife
 Preparing the shaving requires skilled men. Each man
 knife. sharpens and turns the edge on his

own knife. He first grinds it and clears a perfect straight edge, then places his knife, edge upwards, before him on the floor, holding it between his knees,

Turning the edge. and resting it against the wall; in this position he takes in both hands a heavy steel, and presses it along the straight edge, with more or less pressure as required to turn the edge. This edge catches the lumps and inequalities of the flesh side and shaves them off.

When shaved the hides are laid flat on a stone table, and
 Scouring. undergo a series of scourings and

pressings out on both sides, to remove bloom and dirt and take out creases. After this it is

steeped for two days in sumach or
 Steeping in sumach water. myrabolams to give it a finishing colour. These infusions are made with boiling water.

The hides are then taken to another table and sleeked out
 Oiling. on both sides with an iron sleeker; then, while still wet, cod oil is rubbed on lightly on the flesh, and more heavily on the grain. They

are then hung up for the oil to be drawn into the pores of the skin as the water evaporates.

When about three parts dry, they are taken down and for a second time placed on the currier's beam to be lightly re-shaved on the flesh side; that is, the roughness is taken off without sacrificing much of the leather. This process is called flattening.

After this they are hung up again to dry a little more. They are then stoned out on a table. Then the table, or sufficient surface on a table for the hide to lay on, is rubbed over with dubbing (a mixture of oil and tallow). The hide is laid on the dubbed table grain upwards, so that the flesh adheres to the table; in this state it is well set out, that is, the hide is stretched out as much as it will go by pressure with a hard setting stone with a smooth edge. To do this the hide is damped down in any places that it may have dried too much.

When fairly set it is allowed to dry a little, then stoned out on the flesh side, and afterwards re-set on the grain side to prepare for the dubbing, which is now laid on with a brush and rubbed in and smoothed down with the palm of the hand. Care must be taken that the hide is equally damped all over

before it is dubbed, otherwise the dry parts will remain dark in colour. In this dry climate, it is very necessary to watch that hides do not get too dry in the processes of currying. When dubbed, the hides are hung up to dry, and when the grease has gone well in leaving a white coating of refuse tallow on the outside, they can be taken down and finished off, which is done on a table. First the flesh side

is smoothed with a pebble or glass, then the grain is sleeked with a fine sleeker to remove the coating of tallow, then sleeked with the pebble and glass

to make smooth and bring up a gloss. After all this, the hide is ready for the saddler and harness-maker. It is prepared for various other purposes with more or less dubbing, as the leather is required for soft or for hard purposes.

Cow hides do not require so much setting as buffaloes, but they have oiling and dubbing in proportion to their thickness. For currying cow hides. very soft uses the cow hides are softened by hand labour with a crippling board which loosens the grain.

Sheep and goat skins are only oiled and softened; they are not set or dubbed.

Tools used in tanning. The following tools are used in tanning :—

Tongs, for lifting hides out of lime-pits.
 Unhairing knives.
 Fleshing do.
 Rounding do.
 Tanners' hooks, for lifting hides out of tan-pits.
 Scudding knives.
 Striking pins.

Tools used in currying. The following tools are used in currying :—

Currier's shaving knife.
 Sharpening steel.
 Turning do.
 Scouring stone.
 Do. sleeker.
 Pumice stone.
 Setting stone.
 Finishing sleeker.
 Pebble.
 Gloss sleeker.
 Stuffing brush.
 Crippling board.
 Rub-stone and clearing-stone for sharpening knives.

The natives neglect the currying process with their leather. There is no trade corresponding to the currier's in this country.

Native currying.

The best harness-makers curry their leather before cutting it up into straps; they curry it in strips of a foot wide, and apply tallow only; very often they apply nothing but butter-milk, which gives the leather a very bright appearance, but the moisture very soon evaporates, and the leather becomes hard and brittle.

CAWNPORE: }
The 25th February, 1870. }

Government Reply on above, to Deputy Inspector-General of Ordnance and Magazines, dated Camp Ramnuggur, the 29th March, 1870.

I AM directed to acknowledge the receipt of your letter No. 50, dated 9th instant, and to request that His Honor the Lieutenant-Governor's best thanks may be communicated to Captain Stewart, R. A., Commissary of Ordnance in charge of Tannery, for his exhaustive and most interesting report on the process of tanning.

2. The paper will be published in the Selections from the Records of Government, North-Western Provinces, as containing much practically useful information, especially on the barks and substances used in the process.

3. The attention of Mr. W. Jameson, Superintendent of the Botanical Gardens, will be drawn to the importance of endeavours to naturalize the *sumach* and *divi-divi* plants.

4. The Lieutenant-Governor will be glad to be favoured with the result of the experiment which Captain Stewart is carrying on of the tanning powers of the bark of saul, asseyana and amultass.

VERNACULAR NEWSPAPERS AND PERIODICALS
PUBLISHED IN N.-W. P. DURING 1869.

*Report by M. Kempson, Esq., Director of Public Instruction,
North-Western Provinces, dated 12th February, 1870.*

SIR,—I have the honour of submitting, for His Honor's information, the following Report on the Vernacular Newspapers and Periodicals published within the limits of the North-Western Provinces during the year 1869, with a statement showing the particulars of language, locality, and circulation.

2. It will be remembered that 19 newspapers,* with a circulation of 5,016 copies, were registered last year. This year I have included the particulars of the *Oordoo Delhi Gazette* (Agra), and of six new issues—viz., (1) the *Akhbar Niyar Akbar* (Bijnour); (2) an Educational Gazette in Oordoo (Agra); (3) the *Mufid-i-am* (Agra); (4) the *Matlvi Nur* (Cawnpore); (5) the *Jagat Samachar* (Meerut); and (6) the *Muir Gazette* (Mozuffernuggur). Of these the two last-named are Hindee representatives of the *Meerut Gazette* and the *Muir Gazette* (Oordoo), also of Meerut. Three Hindee papers—viz., (1) the *Pap Mochan* (Agra)—(a Hindee version of the *Dharm Prakash*); and (2) the *Vidya Darsh*, published at Meerut by the editors of the *Najm-ul-Akhbar*; and (3) the *Tattwa Bodhni*, of Bareilly, have been withdrawn from circulation. On the whole, there is a net increase of seven papers, which is accounted for by the fact that the three issues just named were not recorded last year. Two of them were Hindee versions of Oordoo papers, as said

* For purposes of comparison, I may state here that the number of Native newspapers published at the present moment in the Bombay Presidency is 48; of which nearly half are published in Bombay alone. Of these the languages are as follow :—*Bilingual (Anglo-Marathi and Anglo-Gujaratee)* 12, *Marathi* 14, *Gujaratee* 18, *Hindustanee* 3, and *Persian* 1.

above, and no particulars could be given of the irregular publication of the third.

3. The circulation has increased by 2,048 copies—a result which is partly attributable to the admission of three papers to the number of those subscribed for by His Honor's Government in this Department—viz., the *Allypore Institute Gazette*, the *Sholaitoor*, the *Jalwaitoor*, and the *Rohilkhand Akhbar*. Honorable mention in this respect is due to the *Abi-hyat Hind* (Agra), the issue of which has grown from 615 to 1,022 copies, by an addition of nearly 400 Native subscribers. The circulation of the *Dharm Prakash* (Agra), and the *Nur-ul-Absar* (Allahabad) has, on the other hand, declined from the withdrawal of Native support. The disposition of the languages is much the same. There are two bilingual issues, 15 in Oordoo only, 8 in Hindee only, and 1

Four which appear in two separate versions.

in Bengalee. The preponderance of Oordoo papers shows that the news-reading section of the community belongs chiefly to members of the official class, and the inhabitants of large towns. A really scholarly Hindee paper is still a desideratum for the use of the schools. The Oordoo of the *Nur-ul-Absar* has considerably improved during the year, more attention having been paid to style. Articles translated from English papers are not generally well rendered. The number of copies exchanged between the editors is 419, against 294 for last year, and the inter-copying of news is as before a marked feature. The two Benares papers, the *Mufid-ul-Anam* of Futtehgurh, and the *Nasini-i-Jounpore*, still maintain a precarious existence, judging from the poor circulation they command. Their contents are not such as to make this a matter of regret, so far as the public is concerned. The Nagree version of the *Muir Gazette*, published at Moozuffernuggur, received the support of the Department from April 1st; but the want of ordinary care shown by the editor in making his paper really useful to the schools as a correct model of Hindee has led to the withdrawal of Government patronage.

4. Looking at the issues of the year as a whole, I think they have been unusually free from mischievous statements or bad taste. This is the more noteworthy, because the year has been a bad one both for the country and the Government. If I were asked to name one topic which more than any other occupied the attention of the editors during the year, I should say it was the discussion on the claims of Hindee to supersede Oordoo as the language of the Courts. Several interesting papers were contributed, of which I think the fairest and best put belong to the *Allypore Institute Gazette* and the *Nur-ul-Absar*, although the former of these papers advocated the claims of both languages, and, as usual, rather held aloof from any distinct statement or decided view. The popular feeling is undoubtedly strong in favour of Hindee, in opposition to that of the official class, which holds to existing usages. It may also be safely averred that the Hindoos, as a rule, advocate the claims of Hindee, and Mahomedans of Oordoo. Many Hindoo gentlemen of position have the subject near at heart, and the Maharajah of Benares went so far as to ask to be allowed to effect the change of Hindee for Oordoo within his own domain. The Rajah of Kashipore has stated his opinion very clearly in favour of Hindee; and the general wish is that a trial may be given to the change in suitable localities, such as Muttra or Bundelkhand. The change, as considered by the most enlightened among its Hindoo advocates, is not so much one of language as of character. These argue that the Hindee character is the best generally known among the masses, and the most easily diffused; that it lends itself with facility to the representation of foreign vocables, and cannot well be mis-read or misunderstood. They do not admit as real the objection of its clumsiness. I shall return to this subject presently. Other topics, such as the prevailing scarcity, the meeting at Umballa, the expected durbar at Agra, received general notice; but little appeared of any value to the Government, in the way of suggestion or criticism, upon

matters known to be the subject of anxious discussion by the Legislative Council.

5. Dividing the ordinary topics of the Native Press into three groups, Political, General, and Educational (the latter being entitled to a separate heading from the frequency of their occurrence), I now notice briefly the contents of some of the leading papers.

Political.—The *Mufid-ul-Anam*, of Futtehgurh, a poorly-conducted paper, considers the action of Government in noticing the issues of the Native Press judicious, particularly in the way of subscribing for a number of copies (January 14th). The *Ab-i-hyat Hind*, of Agra (page 76), notices with some care the Marriage Bill proposed by the Brahmo Sumaj. The *Sath Sobha*, of Agra, of which this paper is the organ, is of opinion that free-thinkers should be at liberty to construct their own Marriage Laws, so long as the Government takes care that a door is not opened to crime and immorality. It suggests that the contracting parties should bind themselves to profess one and the same creed, forgetting herein that free-thinking would be at an end. It would forbid intermarriage between parties holding a different belief in religious matters; and would disinherit all converts. The *Allygurh Institute Gazette* (18th June) notices the same Bill. The political articles of this paper are not generally original. Much is taken from official papers, such, for example, as the remodelling of the Oudh Commission (page 98). More than one of the Native papers have indulged in strongly expressed praises of the Administration of the British Government in India; take, for example, the *Ab-i-hyat* of the 1st February, and the *Akhbar Niyar Akbar* (Bijnour) of July 8th. I observe that the local English press attributes praise of this kind to a bad motive, hinting very plainly that bought administration is valueless, and all but teaching Native editors to suppose that the liberty of the press will be best interpreted here, as in Europe, under free Governments, as liberty to

abuse the Government. It is a question, whether the suggestion of dishonest motives is likely to lead to their reform. Of the instances above noted, one is a paper of which copies are taken by the Government, and the other one to which no help of the kind is given. The meeting of the Governor-General with the Ameer Shere Ali at Umballah is described with considerable detail in the *Oordoo Delhi Gazette*, and also in the *Allygurh Gazette*. Few comments occur as to the nature of the negotiations or their future bearing; and the natural tendency to surmise seems to have given place to a feeling of astonishment at the move thus made by the Cabul Chief. The *Akhbar-i-Alam* considered the arrangements made for the reception of the Ameer to have been excellent. Lord Lawrence's speech at the Mansion House attracted some attention early in the year, and at a later period the success of the Native competitors in the examination for the Indian Civil Service.

6. *General.*—I have already briefly alluded to the interest felt among all sections of the Native community in the revival of Hindee as the true vernacular of the majority. The papers published in the *Allygurh Gazette*, at pages 258, 350, and 365, are interesting. At page 422 the views of Rajah Sheoraj Singh, C.S.I., of Kashipore, formerly a Member of Council, are given. He, as a Rajpoot Chief, speaks with feeling on the displacement of the old Hindoo vernacular by a mongrel tongue in foreign characters, which is rarely acquired in any degree of excellence, except by Mahomedans, and those Hindoo castes who look to Government employment for a livelihood. On this point, a writer in the *Ab-i-hyat Hind* affirms that even in Delhi and Lucknow, where Mahomedans abound and Oordoo speakers and poets congregate in the largest numbers, really good Oordoo is a rare accomplishment. This is probably the true state of the case; and my own experience, so far as it goes, bears out the statement. One rarely meets with plain grammatical Oordoo, such, for example, as that of the *Mirat-ul-Arûs*, by Nuzeer Ahmad. Within the last few

months, it has fallen to my lot to examine some 200 Oordoo manuscripts, which have been submitted under His Honor's Prize Notification, and the majority of the competitors write carelessly and inaccurately, aiming rather at verbiage than perspecuity, sound than sense, or basing their style on such books as the *Fisana-i-Ajaib*, the rhyming prose of which is incompatible with a simple and forcible style. The extent to which the neglect of Oordoo as a polite tongue is carried, is exemplified in a statement made by one of the most voluminous of the competitors (Golam Hyder, of Jais, Oudh), who does not blush to say in his preface that he has purposely disregarded the conventionalities of Grammar. The writer in the *Ab-i-hyat* argues that Hindee in its various dialects, from the pure Sanskrit type to the *bhasha* patois, is spoken all over Upper India, and that it is a mistake to suppose that the present language of the Courts ever was or can become the language of common life. The language he would recommend for adoption in the Courts is the spoken language couched in the Nagree character, as indigenous to the country, and most popular with the bulk of the community. He would not stipulate for a return to archaic forms of speech and Sanskrit vocables, but accept all foreign additions which usage and the growing wants of the country have rendered current. There is much common sense in this, and the writer strengthens his position by the assertion that the late Mr. Thomason was anxious to introduce a Court language of this kind, and looked to the village school system as an aid in its ultimate adoption. Deputy Collector Kunnoo Lall writes to the *Nur-ul-Absar* to the same effect, and estimates the benefits likely to be produced by the abandonment of the ordinary Court Oordoo, among which he names the progress of education among women, the arrest of immorality caused by the circulation of impure Oordoo and Persian books, and relief from the corrupt dealings of the *amla*. While upon this question, which I have ventured to notice at some length as the chief topic of general interest for the year, I may add that a meeting of influential

Natives was held at Agra on the occasion of the Duke of Edinburgh's visit in January last, at which the *pros* and *cons* were discussed ; and that in all probability a memorial will be addressed to His Honor, recommending the experimental introduction of Nagree as the Court language in districts favourably situated.

7. The scarcity of provisions in some parts of the North-Western Provinces is the subject of a good article in the *Lawrence Gazette* of Meerut (September 6th). The writer is of opinion that the cultivation of cereals has been neglected, and compares the condition of the country to the state of a ship which should have been provisioned for a month but has put to sea with only fifteen days' supply. The relief arrangements are generally regarded with satisfaction ; and the establishment of poorhouses, in which the labour of mendicants and paupers can be utilized, is recommended by the *Ab-i-hyat*, with special reference to the success of Moonshee Sheo Narain's management of the Agra experiment. The dispensary system does not receive favourable notice, as a rule, and the complaint is that "high and low are driven with the same stick." There seems to be no doubt that the system of out-door patients is the only one likely to be popular. I have noticed in several of the papers, from time to time, comments upon the Police and Executive Departments, some favourable and others complaining, but none inflammatory. The *Niyar Akhbar* (Bijnour), of the 25th May, had an article, apparently in the form of a lecture by Osman Khan, of Rampore, on the Police Administration of the Government. This meets with considerable approbation, and the writer favourably contrasts the state of the Department with the modes adopted in Native States. The *Akhbar-i-Alam* of Meerut made a mistake in attacking the collection of the license-tax in Meerut. The Collector of the district enquired officially into the grounds of the allegations made, and showed that the editor had been misled. The correspondence on this subject was recently printed in the *Government Gazette*. His Honor's Notification

of August, 1868, offering rewards for the encouragement of literature, has been welcomed almost universally. The *Jalwaitoor* of Meerut (10th June), had a carping article on the subject, the gist of which was that the rewards were insufficient, and that an eclectic system was bad. He would have all authors rewarded, whatever their relative merits. This paper is conducted by Ganeshee Lall, and I cannot say that the assistance given him for the first time this year by the Government has had a good effect upon the style and tone of his subjects. His management of the *Muir Gazette*, Oordoo and Hindee, has entirely broken down. The *Lawrence Gazette*, of Meerut, is better conducted. Its articles are often suggestive, especially on general questions. The issue of March 27th had a curious calendar, somewhat after the fashion of Zadkiel, containing forecasts of the events of the year, some of which have been made good. The *Benares Akhbar* takes more intelligent notice of passing events than usual. The article on Freedom (September 27th), which is noticed by the compiler of the Selections, was well conceived on the whole, but it was probably copied. This paper notices the conversion to Christianity of a "Nawab of Cawnpore," having taken the intelligence from the *Friend of India*. The "Nawab" was a Mahomedan of ruined fortunes, from the Futtehpoore District, I believe; but I am unable to speak with certainty of the nature of his dealings with the S. P. G. Mission at Cawnpore. As a rule, Native editors never trouble themselves to investigate the accuracy of reports of this kind. An April issue of the *Muir Gazette* reported the conversion to Mahomedanism of five Europeans at Madras. More than one of the papers have recommended the subject of sanitation, fully admitting the necessity of the interference of Government.

The *Nur-ul-Absar*, among other articles well worth reading, treated the subject of vagrancy in the issue of September 15th. The editor was of opinion that the proposals made by Mr. Justice Turner were sound. Among subjects of minor importance, I may notice the October numbers of the *Allypore*

Gazette, on the native tendency to sharp practice and self-interest. The writer endeavoured to show that a peculiar talent for conducting business had been mistaken for a wish to over-reach. The *Jalwaitoor* held a contrary opinion. This latter paper (August 2nd) had some ill-conceived comments on the supposed impropriety of driving up to the doors of a gentleman's house. Joint Magistrates, &c., are advised "to lay their *hukumat* on the shelf" in this matter. The rough usage sometimes received by respectable natives at the hands of the Railway employés is complained of by the *Ab-i-hyat Hind* (page 152), and it is specially noted that natives who come to see their friends start are driven off the platform. The *Kavi Bachan Sudha*, of Benares, appears in Sanskrit and Hindoe, with Oordoo occasionally, and seems to notice religious topics more particularly. It is published every full-moon, and is distributed gratis. The Hindoe is good, and the matter generally original. The Editor, Gopinath, is a person of literary tastes, and notices the works of poets with quotations. No. 5 contained remarks upon Marshman's *History of India*, in relation to the account there given of the Purans. The re-marriage of Hindoo widows has a powerful advocate in this journal; and the extraordinary dream told in No. 6, is intended to satirise the folly of opponents.

8. *Educational* matters have been one of the chief subjects in many of the papers, particularly in the *Allygurh*, *Meerut* and *Agra* papers. The *Educational Gazette* has been published at Agra during the year, in the hope of assistance from the Government. The name is ill-chosen, as it might be supposed to mean that the paper was an organ of the Department of Public Instruction, which it is not. The Editor is the chief Moonshee in the Agra College, but publishes in his private capacity. His articles are often sensible. The issue of March 10th, remarked upon the great difficulty of drawing up an Educational Report so soon after the inspection season is finished. The writer thinks that the inspection season might be held to run on until the 15th April, and that the reports might be drawn up in all the two next months. He is right as to the difficulty of submitting

an accurate report of operations and statistics during the short time available. The progress of His Honor's tour, and the remarks made by him on various public occasions, such as the Durbars at Bareilly and Cawnpore, were duly noticed in several papers, and generally correctly. The *Akhbar-i-alam*, so early as the 25th February, pointed out the benefits of His Honor's visits, and remarked on the general ignorance of the public as to what was going on in the education of the masses. In respect to the Inspector's duties, the *Muir Gazette* (August 23rd) expressed its opinion in favour of the direct management of the schools by them rather than by the District Officers. It remarked that, though it was certainly easy for a Collector to order, the Inspector's experience and attention to particulars made him the best judge of what was wanted. An article in the *Lawrence Gazette* of April 17th contrasted the progress of education in Europe and India; and the same article offered suggestions on the teaching of Grammar through the medium of translations. It is not, however, the Grammar of the English language, so much as its idiom, which puzzles the native student. The *Najm-ul-Akhbār* (May 26th) made some sensible remarks on the advisability, where possible, of giving better pay to village school teachers. The writer rather loses himself when he comes to generalities, and to treat of the object for which the schools are maintained. The same paper, in the issue of the 20th October, contained a communication from a Deputy Inspector of Schools, intended to expose the tricks practised by school-masters at examinations. An unsuccessful attempt which had recently come under his observation was the text, but it is obvious that tricks can only be practised where there are dupes; and I am afraid, from the way in which things were stated, that it was quite as much to bring forward his own sagacity, as to expose the abuse, that the communication was made. Several good papers on female education have attracted my attention from time to time. An article in the *Akhbār Niyar Akhbar*, of January 14th, was among the best. The *Sholaitoor*, of Cawnpore, has noticed the subject now and then, and several other papers have shown an interest in the

movement. The native public no longer regard it as a novelty, and I observe many signs of progress. The *Allygurh Gazette*, of November 12th, contained a communication from its former Editor, Syud Ahmud, now in England, on the subject of the education of the sex, so far as it had come under his observation there. His surprise at the extent to which education has reached the masses in England, explains to some extent his apparent want of sympathy with the efforts of the Government in the same direction in this country. This traveller has, I observe, taken occasion, during his absence from India, to assail the Government policy in education, with an animus hardly suited to the subject, in a tract printed for private circulation, part of which was re-printed in the *Allygurh Gazette* by his friend Rajah Jykishen Dass. But while the animus of this brochure is apparent, its drift is obscure. We are told that Government has failed to do its duty by the people, just as we were hastily told last year by a Bengalee Baboo that our village schools were a sham; but whether the system itself or our administration of it is wrong is left uncertain, and no help is given in the way of practical suggestion. Mahomedans, as a fact, dislike our system, because it ignores them and their traditions. The tract is, therefore, *primâ facie*, likely to argue in favour of a return to orientalism, or some such application of *similia similibus curantur*; and in fact it does so, though the recipe is not clearly given. On the other hand, the endeavour to show that no results have been achieved, looks like quarrelling with the management only. More than one reply has been made by natives who think differently; and Baboo Siva Prasad in particular has printed a rejoinder, of which the ability is conspicuous. The *Nur-ul-Absâr*, of Allahabad, the *Sholaitoor*, of Cawnpore, and the Bareilly Magazine, have also expressed their dissent; but as the "strictures" were privately circulated in English only, and sent by the author to English gentlemen of his acquaintance and Officers of the Government, chiefly, so far as I am informed, the native public has had little opportunity of judging for itself. The *Allygurh Gazette* publishes letters from Syud Ahmud, from

Association. The *Zakhira-i-Balgobind*, of Agra, is well stocked with miscellaneous matter, generally worth perusal, but the Editor is exceedingly unpunctual in his issues. The circulation has increased during the year from 275 to 300 copies. The Bareilly Magazine has also found additional supporters, and has maintained its position pretty well, as a useful means of supplying instructive reading for the better class of vernacular schools. The ablest paper in the issues of the year was by Pundit Koonj Behari Lall, Deputy Inspector of Schools in the Agra District, on the formation of Prakrit and the Bhashas from the Sanskrit. Cognate enquiries into the early history of the country, and the extent to which the influence of the Sanskrit-speaking race may still be traced, even in the languages of the Dakhan, add force and interest to the article; and show signs of research and reflection. The writer considers, I think with good reason, that the ethnological theory of an Aryan immigration is untenable, if European Chronology is correct. *The Pundit* of Benares College does credit to the taste and energy of its managers, but I regret to see no increase in circulation. It is a reproach to the Hindoo community, that they do not support so useful an attempt to recommend their ancient literature. The *Hindoo Commentator* which was started in imitation of *The Pundit*, enjoys a slightly larger patronage. The records of the Proceedings of the various Debating Societies at Meerut, Cawnpore, Etawah and elsewhere are not included in this list. I furnished His Honor with a separate review of the Meerut Society's Proceedings for 1868; and, judging from those published in 1869, I should say the Society's usefulness was increasing. The January number contained a sensible essay on the uses of such Societies, and compared them to the fly-wheels in machinery—an idea which is borrowed from Mr. Helps. The remarks made in the same issue on the subject of translations and compilations are well-timed. Accuracy in quotations and honesty in acknowledging sources of information are dwelt upon with care and effect. The essay by a student of the Mission School on good conduct was hardly worth insertion. The February number contained a useful discussion on the

rent question. Deputy Collector, Nund Kishore, has stated his views on the rights of proprietors very clearly. The slaughter-house arrangements of the Municipal Committee came under discussion at the same meeting, and exemption is claimed against interference in religious sacrifices. The Court language question was also handled with the usual division of opinion between Hindoos and Musalmans. The March number contains several useful essays on the dearness of cattle, the application of canal water to machinery, the meaning of Section 494 of the Penal Code, and the Provisions of Act X. of 1862. The Marriage Bill was discussed at the next meeting, and an essay on the causes of the decline of literature appears in the proceedings, which wrongly attributes decay to the extent to which English has been introduced in school teaching. The May number has a curious debate upon the admission of new members, and recommends a money qualification. Among subjects handled in succeeding reports, I notice a discourse on the "Science of Legislation," in two chapters, which seems to be wrongly labelled from the contents, which are æsthetic. An essay on "Example is better than Precept" deserves notice as treating of a topic, the importance of which can hardly be over-rated in this country, whether as regards native habits or the conduct of Europeans. A paper on "Dreams" in the July number is followed by one on "Politeness;" another on "Union is Strength," and another on "Education." The Editor of the *Lawrence Gazette* is an active member of the Debating Society, and contributes occasional articles. The tone of his journal is undoubtedly all the better for association with this excellent Society; and I think it will be very advisable to transfer to him some of the patronage now enjoyed by inferior papers, such, for instance, as the *Jalwaitoor* of the same place. But the revision of patronage belongs to a separate address, to be submitted shortly.

I have, &c.,

M. KEMPSON,

Director of Public Instruction, N.-W. P.

No	9	Allypore.	Allypore.	Institution.	Allypore Gazette.	Scientific Society.	Mohamed Ismael and Gungah Pershad.	Weekly.	273	65	207	29	574	Oordoo with 2 or 3 pages English.
10	{	Benares ...	Benares ...	Benares Akhbar ditto.	Benares Gazette.	Gobind Nath.	Gobind Nath.	Ditto...	1	1	9	5	16	Oordoo.
		Ditto ...	Ditto ...	Ditto ditto.	Ditto ditto.	Ditto ditto ...	Ditto ditto ...	Ditto...	1	1	33	15	50	Hindee.
		Ditto ...	Ditto ...	Light Press.	Kavi-Rachan-Sudha.	Gopi Nath	Baboo Harish	Monthly,	1	3	105	3	112	Ditto.
12		Bijnour ...	Bijnour ...	Zain-ul-Matabe.	Akbar.	Syad Zain-ul-Abdeen Ahmad.	Mohandur Hossein.	Weekly,	3	85	274	35	397	Oordoo.
13		Cawnpore.	Cawnpore.	Sholah Toor Press.	Sholah Toor Press.	Moonshee Jumna Pershad.	Moonshee Jumna Pershad.	Ditto...	250	8	182	25	465	Ditto.
14		Ditto ..	Ditto ..	Mutlai Nur.	Mutlai Nur.	Beharee Lal.	Runjee Lal.	Ditto...	...	2	54	7	63	Ditto.
15		Futteh-garh.	Futteh-garh.	Dil kusha Press.	Mufid ul-Anam Press.	Ram Saroop ..	Ram Saroop ..	Ditto...	...	2	48	13	69	Ditto.
16		Jounpore.	Jounpore.	Ishaqi ditto.	Nazim Jounpore.	Mohamed Ishaq.	Mozaffer Hossein.	Ditto...	2	1	49	13	65	Ditto.
17		Kumaon ...	Nynce Tal.	Nynce Tal.	Tal Nynce Tal.	Pundit Jai Dutt Joshi.	Pundit Jai Dutt Joshi.	Fort-nighly.	80	27	11	...	68	Hindee.
18		Meerut ...	Meerut ...	Ziaee ditto ...	Najm-ul-Akbar.	Ameer Ahmad.	Ameer Ahmad.	Weekly,	305	5	21	15	346	Oordoo.
19		Ditto ...	Ditto ...	Dar-ul-Alum.	Akbar-i-Alam.	Wijahat Ali Khan.	Wijahat Ali Khan.	Ditto...	250	9	58	27	344	Ditto.
20		Ditto ...	Ditto ...	Ditto ditto.	Meerut Gazette.	Ditto ...	Ditto ditto ...	Ditto...	...	9	48	27	84	Ditto.
21		Ditto ...	Ditto ...	Ditto ditto.	Jagat-Samachar.	Ditto ...	Ditto ditto ...	Ditto...	...	5	12	1	18	Hindee.
22		Ditto ...	Ditto ...	Mohi-i-Kishwar-Hind Press.	Lawrence Gahar-Hind Press.	Jamil-ul-Deen.	Jamil-ul-Deen.	Ditto...	2	12	66	20	100	Oordoo.
23.		Ditto ...	Ditto ...	Sul-tan-ul-Matabe.	Salwa-i-Toor ...	Lalla Ganeshi Lal.	Goolam Mo-hamed.	Ditto...	251	21	97	26	395	Ditto.
24		Ditto ...	Ditto ...	Ditto.	Muir Gazette...	Ditto	Shumbarho Nath.	Ditto...	3	11	115	19	148	Ditto.

Statement A., regarding the Periodical Publications issued from the Native Presses in the North-Western Provinces during the year 1869.—(Concluded.)

Number.	District.	Town in which issued.	Name of Press.	Name of Publication.	Name of Proprietor of the Press.	Name of Editor.	Date of Publication.	Taken by Government.	By European Subscribers.	By Native Subscribers.	Exchanged with other Presses.	Total	Remarks.
25	Mozuffer-nugger.	Mozuffer-nugger.	Branch ditto.	Ditto ditto...	Ditto.	Lalla Ganeshi	Ditto...	201	11	30	9	251	Hindee.
26	Moradabad	Moradabad	Khurshaid Rohlkhund Hind.	Sham Seroop... Akhbar.	Sham Seroop...	Lall. Sham Seroop ...	Ditto...	250	12	206	12	480	Oordoo.
							Total...	3,051	552	3,042	419	7,064	

M. KEMPSON,
Director of Public Instruction,
North-Western Provinces.

OFFICE OF DIRECTOR OF PUBLIC INSTRUCTION, N.-W. P.:

LIEUTENANT-GOVERNOR'S CAMP,

The 12th February, 1870.

Statement A1., regarding the Periodical Publications issued from the Native Presses in the North-Western Provinces during the year 1869.

VERNACULAR NEWSPAPERS AND PERIODICALS.

233

Number.	Districts.	Town in which issued.	Name of Press.	Name of Publication.	Name of Proprietor of the Press.	Name of Editor.	Date of publication.	Taken by Government.	By European Subscribers.	By Native Subscribers.	Exchanged with other Presses.	Total.	Remarks.
MAGAZINES AND PERIODICALS.													
1	Agra	...	Oordoo Akbar.	Zakhira-i-Balgobind.	M. Balgobind.	M. Balgobind.	Monthly	179	4	113	4	300	Oordoo
2	Do.	...	Medical Press	Aina-i-Tibabut.	Imamud-deen.	Imamud-deen.	Do. ...	34	6	59	1	100	Do.
3	Bareilly	...	Rohilkhand Bareilly Review.	Literary Society.	Society. ...	M. Ajoodya Pershad.	Do. ...	234	8	50	8	300	Do.
4	Do.	...	Ditto	Brahm-gyan-prakash.	Society. ...	B. Keshub Chunder.	Do. ...	1	...	200	1	202	Do.
5	Benares	...	Medical Hall Society.	The Pundit...	Dr. Lazarus R. Griffith, Esq.	R. Griffith, Esq.	Do. ...	50	35	41	1	127	Sanskrit, with English occasionally Sanskrit.
6	Do.	...	New Sanskrit Press.	Hindu Commentator.	Hurymohn n Mookerjee.	Satya Vritt Sama Shrumi.	Do. ...	50	20	61	9	140	Oordoo.
7	Moradabad	...	Association Do.	Ganjina-i-Ulum.	British Indian Association.	M. Gunga Pershad.	Do. ...	100	11	60	14	185	Oordoo.
8	Shahjehan-pore	...	Local Press.	Makazan-ul-Jawahir.	R. Saunders, Esq.	R. Saunders, Esq.	Do. ...	450	...	...	...	450	Do.
Total...								1,098	84	584	38	1,804	

M. KEMPSON,
Director of Public Instruction,
N.-W. Provinces.

OFFICE OF DIRECTOR OF PUBLIC INSTRUCTION, N.-W. P.:
LIEUTENANT-GOVERNOR'S CAMP,
The 12th February, 1870.

Reply of Government on above, dated Allahabad, the 1st April, 1870.

SIR,—Your Report on Vernacular Newspapers and Periodicals, published in the North-Western Provinces during 1869, No. 2671, dated the 12th February last, having been laid before the Hon'ble the Lieutenant-Governor, I am desired to say that His Honor has perused this valuable and interesting report with satisfaction.

2. The Lieutenant-Governor is glad to find that the number of native newspapers has increased from 19 to 26. The number of copies now stands at 7,064, being an increase over last year of 2,048—a result however partially due to Government patronage. Of the non-official circulation, amounting to above 4,000 copies, 3,042 are for native, and 552 for European subscribers, and 419 for exchanges.

3. The papers having the largest native circulation are as follows :—

Name of Paper.	Where published.	CIRCULATION.			
		Native.	European.	Exchanges.	Total.
Ab-i-Hyat Hind ..	Agra ...	450	200	25	675
Dharm Prakash ...	Ditto ...	300	...	1	301
Nyar Akhbar ...	Bijnour ...	274	85	35	394
Allygurh Gazette ...	Allygurh ...	207	65	29	301
Rohilkhund Akhbar ...	Moradabad ...	206	12	12	230
Shola Toor ...	Cawnpore ...	182	8	25	215
		1,619	370	127	2,116

The *Ab-i-Hyat* is to be congratulated on the accession of nearly 400 native subscribers during the year. It is to be regretted that the *Noor-ul-Absár*, an able and well managed paper, has declined in the number of its native subscribers.

4. Classified by languages, there are 15 purely Oordoo, against 8 purely Hindee papers; the former have a native circulation of 2,050, against 384 of the latter—an indication, as you observe, that the reading population, as a rule, is that which uses Oordoo.

5. The Lieutenant-Governor is glad to be assured that there is an improvement both in style and matter, and a remarkable absence of mischievous statements, either in a moral or political point of view. The subjects treated of have generally been of interest and suitable for discussion. The expression of opinion on the claims of Hindee *versus* Oordoo, so far as it has gone, is indicative of a patriotic feeling on the part of the Hindoos. It is gratifying to find that female education receives steady and effective support from the press, and the cause is evidently advancing slowly but surely in native estimation.

6. Your account of the political articles is interesting. The general action of the press in this respect has been unexceptional; and, as the action of the press advances in reach and influence, it may become a valuable auxiliary to the Government in giving currency to authentic information, as well as eliciting loyal discussion on measures in contemplation, and on the administration generally.

7. His Honor is glad to observe an increase of two in the number of periodicals, of which there are now eight. The total circulation is 1,804 copies, of which 584 are subscribed for by native purchasers. Mr. Saunders deserves much credit for the Shahjehanpore Magazine, which has been of considerable use in the Educational Department. The Lieutenant-Governor is happy also to know that many of the subjects are treated of in a manner which, as you say, exhibits reflection and research. It is gratifying to find that Associations for the discussion of social, political, and literary topics are on the increase; and that a spirit of inde-

pendent thought and discussion of a wholesome character is being thus stimulated. Sir W. Muir has had ample proof of this, both in the perusal of their publications, and in personal conference with several of the Associations during His Honor's tour.

8. The English abstract of the issues of the Native Press will now be prepared by Mr. Wagentriber under the immediate supervision of the Secretariat at Allahabad—an arrangement which the Lieutenant-Governor trusts will tend to obviate the defects pointed out in your report.

9. Government will be prepared to receive proposals for a re-distribution of its patronage of the Native newspapers. His Honor's wish is that encouragement of this nature should, as far as possible, be extended to the best of the leading journals every where; and that the distribution of the copies purchased should be to some extent local within the division in which the papers are severally published.

10. You mention that a well-edited Nagree paper, suitable for distribution among the schools throughout the Provinces, is a desideratum. The Lieutenant-Governor agrees with you, and thinks that the want extends also to a corresponding paper in Oordoo. A weekly or half-monthly paper, containing information of general interest, and also political and economical articles, suited to the young, would prove of great service for the schools throughout the country, and His Honor will be prepared to encourage any well-considered project for setting such a paper on foot.

I have, &c.,

F. HENVEY,

Offg. Secy. to Govt., N-W. P.

PUBLICATIONS REGISTERED AT CURATOR'S
OFFICE, ALLAHABAD DURING THE YEAR 1869.

*Report by M. Kempson Esquire, Director of Public Instruction,
North-Western Provinces, dated 18th February, 1870.*

SIR,—I have the honour of submitting for His Honor's information, the following observations on the publications* registered at the Curator's Office Allahabad during the year 1869, under the provisions of the Act.

2. During the first quarter of the year, the catalogue was continued in the confused form originally adopted; but for the remaining quarters, in accordance with His Honor's Orders 1032, dated 11th March, 1869, a classification was attempted, and the entries appear under the following general groups, as *Books, Pamphlets, Periodicals* and *Miscellaneous*. In other words, every form of publication has been registered as before, but on a more intelligible system. It has not always been easy for the Curator to say what was properly speaking a book or a pamphlet, and a critically disposed inquirer might find a pamphlet called a book, or a book a pamphlet in some instances, but such cases are not numerous.

3. The number of entries is 564, <i>i. e.</i> , nearly 100 more	than last year. They are classified in the
Books ... 180	proportions shown in the margin. My
Pamphlets ... 132	remarks in the way of comment or criti-
Periodicals ... 208	cism will be confined chiefly to the 180
Miscellaneous ... 44	books, the nature of the contents and
564	

* For detailed Lists, see *Allahabad Gazettes* of 14th April, 1869; 28th July, 1869; 27th October, 1869, and 26th January, 1870.

languages of which may be seen at a glance in the annexed statement:—

Character of Contents.	LANGUAGES OF PUBLICATIONS.													
	Hindee.	Oordoo.	Sanskrit.	Arabic.	Persian.	English.	Oordoo and Eng-lish.	Hindee and Sanskrit.	Oordoo and Sanskrit.	Arabic.	Oordoo and Persian.	Persian and Arabic.	Oordoo, Persian and Arabic.	Total.
Religious ...	9	7	2	5	2	0	1	4	0	2	2	1	3	38
Educational ...	25	15	0	2	10	4	1	0	0	0	1	0	0	58
Poetical ...	13	8	0	0	5	1	0	0	0	0	0	0	0	27
Professional ...	2	17	0	0	0	5	1	0	0	0	0	0	0	25
Miscellaneous ...	6	10	5	0	3	2	0	3	2	0	1	0	0	32
Totals ...	55	57	7	7	20	12	3	7	2	2	4	1	3	180

From this may be deduced the general fact that rather more than half of the books published are *religious* and *educational*, in the proportion of 2 of the one kind to 3 of the other. One inference from this would be the very practical character of the book-purchasers. As regards the languages of publication in so small a total as 180, it perhaps is hardly safe to draw conclusions, but the increasing use of the vernaculars in literary works is a hopeful sign, and I was glad to see 3 or 4 of the books called forth by His Honor's Prize Notification of 1868 among the volumes on the shelves. Last year, the proportion of vernacular publications was rated at 54 per cent. This year it is over 60, and the Oordoo and Hindee books are nearly balanced in point of numbers. There is, however, considerable dissimilarity in the subjects treated of in the two vernaculars. For instance, of educational works, there are ten more in Hindee than in Oordoo. This is accounted for by the fact that the majority of our Vernacular Schools teach Hindee. It is also noteworthy that the number of educational works in Persian is little less than the number of those in Oordoo, which shows how determinedly

the old *Kayath-Musalman* system of teaching holds its own. The fact that 16 professional works are found in Oordoo against 2 in Hindee is an indication of the extent to which Oordoo is the chosen vernacular of the educated classes, albeit *Hindee* is none the less the language of the masses. Books in Sanskrit and Arabic, and bilingual, are chiefly connected with religion.

4. Taking the books group by group, as grouped in the statement given in the last paragraph, I now select those which seem to call for notice.

Religious.—Among the 9 Hindee works on this subject, 4 concern the Christian religion—(Nos. 126, 127, 390, 430 in the catalogue). Nos. 126 and 127 are translations of the Psalms and of the Prophets Isaiah, Jeremiah, and Daniel, published by the North of India Bible Society, Allahabad; 5,000 copies of each have been printed. No. 390 is the 2nd volume of Doctor Owen's Hindee version of the Bible. It is an octavo volume of 1,148 pages, and is a third edition of 5,000 copies. No. 430 is a third edition (10,000 copies) of the Gospel of St. John. The Society may be congratulated on its labours. The printing is good, and the versions are carefully executed. Of the five remaining religious works in Hindee, No. 3 (Catalogue) *Chourasi Barta* was published by Thakoor Girpershad of Beswan (Allygurh). This gentleman has established a press in his village, and busies himself in the publication of editions and Bhasha versions of Sanskrit works. His object is a revival of the old Hindoo religion in its integrity, as he is impressed with the idea of the viciousness and unreality of modern Hindooism, or the creed of the Purans as opposed to that of the Vedas. He is therefore inconsistent in publishing translations of the former, as seems to be his wont; and the work under notice, which is an account of 84 celebrated Gosaens, lies open to the same objection, for this sect is devoted to the worship of Krishna and Rama. Nos. 187, 189 and 190 are reprints in Hindee of old religious works, published at *Mahomedan* presses. Of the eight religious works in Oordoo, two are Christian, Nos. 62

and 240 in the catalogue. The former, which consists of short anecdotes of a religious bearing, is edited by Mr. Hoernle of Meerut, and is illustrated. The latter is the text of Isaiah, with commentary, by Doctor Owen, in the Roman character. No. 107, *Hamla-i-Hind*, is a controversial work by Inderman of Moradabad, but is not an attack upon Hindooism, as stated in the catalogue. It is one of a series of attacks on the Mahomedan religion by this author, who has been a champion of the Hindoo religion against the attacks of a Musalman writer (a convert from Hindooism), who wrote in the interest of Syud Ahmed Khan when stationed at Moradabad, and of others. There have been several hostile treatises on either side for the last eight years; and this tract, as well as No. 299, *Somsan-i-Hind*, and Nos. 467 and 468, are only reprints of those written on the Hindoo side, all by Inderman. The *Mujmua-i-Rasail-i-Bahsi-Mazhabi* (No. 278) deserves notice in this group as a reprint by a Mahomedan Press at Meerut of the disputations held many years ago at Agra between Mr. Pfander and the Moulvies. I have no means of comparing this version with that published at the time. It is in this instance followed up by the opinions of certain Mahomedan Doctors on the issue of the discussion by way of *Faisala*. That the work should be republished at this date, and in this form, is a proof that the missionary disputants did more than hold their own. No. 97 is a fine edition (3,400 copies) of the Qoran (4to, 692 pages) with a translation in Oordoo and Persian, published at the Housseinee Press, Meerut, which town seems almost to have a monopoly in bringing out the Moslem Scriptures. A beautiful edition of 3,000 copies was published by another press in the same town in October (No. 456); and a third, demy 12mo., of 2,500 copies, by the former press soon after.

5. *Educational Works*.—I have briefly alluded above to the preponderance of Hindee over Oordoo in books of this character, as well as to the fact that Persian still remains a favourite subject of study with a particular section of the

community. Only 4 books out of the 57 educational works issued are English, and three of these are merely compilations of my own editing for the use of the schools. This shows that we depend almost entirely on foreign sources for the supply of English class books. The fourth (No. 451) is a small treatise on elementary English composition, compiled at my request by Professor Wright, of the Benares College. The care and judgment which he has exercised in bringing out this useful work have already been noticed by His Honor. A second edition is now called for. We had projected after this a more advanced exercise book, based upon Mr. Dagleish's work, parts of which are unintelligible and useless for native students of English; but on applying to the publishers, (Messrs. Oliver and Boyd of Edinburgh) for permission, unexpected objections were raised. I may here add, for His Honor's information, that a difficulty has arisen in the projected translation (under the auspices of the Maharajah of Benares) of Chambers's Encyclopædia. Messrs. Chambers object. To return to the 25 Hindee works of the statement in paragraph 3, I find that 14 editions have been published at private presses, to the number of 15,230 copies. *Nine* have been published at the Government Press for use in Government Schools, to the number of 105,000 copies, and *two* by the Christian Vernacular Education Society, to the number of 7,000 copies. It is not a little remarkable that five of the 14 Hindee books published by the Native Presses are intended for use in Girls' Schools. Of these Nos. 480, 413, and 563 on the catalogue are "readers," drawn up by Pundit Ram Jasan, of the Benares College, which promise to be very useful as a compendium of elementary instruction. Of the 15 educational works in *Oordoo*, seven, of 8,150 copies, were published at Native Presses; *six*, of 14,800 copies, at the Government Press; and *two*, of 4,500 copies, by the Christian Vernacular Education Society. On the whole, therefore, of all vernacular educational publications, 21, of 23,380 copies, have issued from Native Presses; 15, of 119,800 copies, from the Government Press; and 4, of 11,500

copies, from the Press used by the Christian Vernacular Educational Society, Allahabad.

6. *Poetical Works.* The only new work in this group is in English (No. 410), viz., "Death the Enemy, and other Poems," by W. H. Wright, Esquire. The collection consists of short pieces, some of which show considerable originality. The imagery is often striking, and the language unconventional. Of the 13 reprints of Hindee poetry, no less than 6 are editions of the *Ramayan*, or of parts of it. Of these the one best worthy of notice is No. 105 in the catalogue, an octavo edition of 1,000 pages, price Rs. 4, published by Moonshee Sadasukh Lall, Allahabad. The lithography of this edition of the poem is bad, and the value of the work is due to the annotations, which are the work of a well-known Pundit. The first issue of 500 copies is already nearly disposed of, and His Honor has promised to encourage the second edition, if carefully brought out. The ready sale of this work shows that purchasers are easily found among the Natives, when the book is to their liking. Of *eight* works in *Oordoo* Poetry, Nos. 68 and 103 in the catalogue are poetical versions of the Selections of English Poetry used in the Government Schools. The former is well done so far as the structure of the *Oordoo* metres is concerned, but the meaning of the original is sometimes lost; the second is the best; and the edition registered is the third. Nos. 271, 272, 254 and 258 are *Oordoo* versions of Puranic literature from the Press of Newal Kishore of Lucknow. They do not strike me as either literal or elegant. The poetical works in Persian, which are five in number, are reprints of the *Gulistan*, *Bostan*, &c.

7. *Professional Works.* Of the two works in Hindee belonging to this group, No. 402 in the catalogue is a translation of Doctor Cutter's work on Anatomy, Physiology and Hygiene, edited by Reverend J. L. Humphrey, of Nynee Tal, for the use of his Female Medical School. The other is a small tract on the measurement of timber, pub-

lished at the same place. The Oordoo language is the popular vehicle for works of a professional and scientific character, as might be expected. Of the 16 works registered, I am glad to find 5 on Medicine and Surgery. Doctor Mukund Lall of Agra uses his pen to good purpose. No. 22, on Pharmacy; No. 171, on Astrology, and No. 538, on Surgery are by him. Mr. John also of the Agra Medical School has published a work on Astrology (No. 475). *Tohfât-us Saniya* (No. 86) is an original work by Hakeem Asghar Hosein on Pharmacy according to English principles. The learned Hakeem was formerly a Deputy Inspector of Schools in my Department, and is now an officer under the Bhopal Government. It is much to his credit, as a Native Physician, that he has taken the trouble to acquaint himself with English methods and prescriptions. There are *six* works on law, of which the *Mukhta-sar-ul-Qavinin* (No. 48), an octavo volume of 519 pages, published at the Light Press, Benares, deserves notice. It is a collection of Unrepealed Acts, likely to be very useful to Pleaders. The first edition is of 1,000 copies. No. 564 is a translation of Mr. E. T. Atkinson's useful Manual of Rent Law published by the Allygurh Society. No. 212 is a scientific work published by the same Society, a translation of Harris' Electricity, carefully executed. No. 233 is an excellent specimen of Oordoo typography from the Roorkee College Press. This work is a translation of Lieutenant Firebrace's carefully compiled Manual of Surveying. The cuts are admirable, and are due, I believe, to the author's own delineation. The *five* professional treatises in English, entered in the schedule of paragraph 3, are from the Roorkee Press.

8. *Miscellaneous Works*.—Of works published in Hindee under this category, I notice Nos. 10 and 74 on the subject of omens. No. 77, *Samudrik*, is a treatise on Palmistry in Sanskrit, with Hindee explanations, and the fly-leaf has a picture of the hand, scored with lines and fanciful figures by way of reference. The subject is a very popular

one, as is proved by the number of copies (1,400) struck off of this edition, which is only one of many others. I recently reviewed an Oordoo manuscript on this subject, which had been sent in under His Honor's Prize Notification. Of the Sanskrit and Sanskrit Hindee works entered in my statement of paragraph 3 as Miscellaneous, no less than three are on astrology. Among the other Hindee books, I regret to notice two editions of an immoral publication, the *Dilbahla*, published at two different presses in Agra, viz., the *Mohammadee* and *Latafat* Presses, kept by Musalmans; (Nos. 12 and 188 in the list). The *Dilbahla*, of which one editor publishes 700 copies at one anna and the other 1,500 copies at 9 pie, is bazar trash in the shape of ribald verses, some of them grossly indecent. It is stuff of this kind which arms native opposition to female education with its most powerful objection, and which poisons the minds of the youths in large towns. For one who reads, there are hundreds who hear the libidinous suggestions and allusions. The publishers are low Mahomedans, who eke out the profits of their presses by keeping up a supply of nastiness within the means of the poorest of their Hindoo fellow-subjects. The practice should be checked, and as the tracts bear the names of the presses, I hope His Honor will order revocation of license in each case. The *Ras Prabodh*, रस प्रबोध (No. 305), is a metrical Hindee version by a Mahomedan of a well-known Sanskrit treatise on the passions, which forms a portion of the *Sahitya Shastra*. This edition of 600 copies is edited by three Baboos, whose taste in literature is more coarse than it might be, and was printed at Benares. Nine passions, or rather moods, are described, of which the first, love, occupies nearly the whole of the book. The treatment is indelicate rather than obscene, and the book is probably intended for the perusal of adults; and it cannot therefore be classed with the *Dilbahla* as decidedly immoral. Among miscellaneous works in the Oordoo language, I consider the tale *Gul-o-Sanobar* (No. 274), published by Newal Kishore, objectionable on

moral grounds. I had not previously heard of the tale, which is written in excellent Oordoo by one Pem Chund. Internal evidence shows it to have been written within the last 30 or 40 years, and the preface states that it is a translation from the Persian. It is a story of a princess and her suitors. The lady propounds a riddle (whence the name of the tale), and the various princes offer their suit, on condition of death if they fail to solve the riddle. Large numbers of young men pay the penalty for their stupidity, and the successful suitor is represented with true oriental exaggeration to be the last of a family of brothers who had perished in the attempt. The scope of the tale is thus harmless enough, but, as usual in these tales, coarsely described. Love scenes interfere with the purity of the romance and disenchant the reader. The *Aina-i-Israr* (No. 301) is an original romance in Oordoo by Najmuddin, Deputy Inspector of Schools, Meerut. There is considerable literary merit in the work, though out-of-the-way words are sometimes used unnecessarily, and a prize of Rs. 200 was awarded to the writer under His Honor's Notification. A second edition of an Oordoo translation of the 10th Chapter of the *Bhagvat* (*Prem Sagar*) was published at Cawnpore by Moonshee Newal Kishore, along with other translations of the same kind. This looks as if the number of Hindoos who care to learn *Hindee* was growing less, and shows that *Oordoo* is becoming naturalised to the exclusion of the former in some parts of the Provinces at least. No. 309 is a tract on the correct method of writing oriental languages in the Roman character. The "literary system" is adopted. *Zebun-nisa* (No. 331) is the title of a small work by Gholam Faridkhan of Shahjehanpore, intended for Girls' Schools. A small prize was assigned to the writer under His Honor's Notification, I notice a brochure (No. 412) by Baboo Shiva Prasad, on "Our Vernaculars." The talents and experience of this author give weight to his views. As a true Hindoo, he advocates the use of the *Nagree* alphabet, but does not stickle for the use of Sanskrit words and derivatives to the exclusion of the numerous Persian and

Arabic words used in the current speech of educated men. The tract is illustrated by an interesting table, which exhibits the various forms of the *Nagrees* letters as they appear in *Bengalee*, *Marathee*, *Kaithee*, &c. No. 175 in the register is a record of the proceedings of a Committee formed, I believe, by Lalla Pearay Lall, of Arrah, for regulating marriage expenses among the Saksena Kayaths. This gentleman has held meetings at several towns in the North-Western Provinces, as Agra, Allygurh, Mynpoory, Etah and Meerut, with the object of introducing a general reform in the customary extravagance of the clan, and his mission has met with general acceptance. Among miscellaneous works in Persian, No. 21 in the catalogue is a memoir of Nund Lall of Agra, in which a novelty occurs in the addition of a photograph of the deceased gentleman. The miscellaneous works in English are two novels, one, the *Stigma* (No. 34) by Mrs. Reilly of Dehra, which shows considerable ability and experience of life. The other is called *The Scorpions*, by Baboo Tara Chund, and is designated in the catalogue (No. 67) as a "comic heroic tale." Of the comicality of the Baboo's performance there is no question. Of books belonging to this class, perhaps the one published in Sanskrit by the name of *Kashi Khand* (No. 31) is the most noticeable. It is a folio of 960 pages, published at the Benares Sanskrit Press by the Maharajah of Benares, I understand, and contains an account of Benares according to the old Hindoo annals. It is badly lithographed, and this, the 1st edition of 512 copies, is sold at Rs. 15, unbound. I think I have now named the more noteworthy publications of the year registered as books. The total number (180) is small, and perhaps eight or nine only of these can be called original works. It is a proof of the desirability of offering direct encouragement to literary enterprise, that three of these are due to the Prize Notification.

9. I stated in paragraph 3 of this paper that the number of *pamphlets* registered is 132. Many of these are the reports annually published by the Missionary Societies, and the Pre-

ceedings of Associations, such, for example, as those of the British India Association, or of the Allahabad Institute, or the Benares Young Men's Association. But a large class of publications have been registered as pamphlets on account of their consisting of a few leaves only, though their contents may be literary or religious, or even educational. As a rule, the pamphlets registered have no special literary interest, and therefore do not require notice in this report. Doubtless there is much of value and importance in the proceedings of the numerous societies which have sprung up of late years within the limits of His Honor's jurisdiction, and I should like to review them, but the task is utterly beyond the leisure at my disposal from office duties. The pamphlets generally viewed may be divided in the form adopted (paragraph 3) for books, as Religious, Educational, Poetical, Professional and Miscellaneous, the last being of course the largest group in this case. The first group is exemplified in tracts of all shapes and sizes, such as the two Sanskrit 8vo. tracts of 4 and 8 pages each, (Nos. 4 and 5 in the Catalogue) which treat of offering to the manes, or the *Shree Kresna Phag* (Nos. 173, 184) of 12 pages each, the *Sabhabilas* of 16 pages, the "Thousand Lessons of Advice" (No. 247) of 101 pages, demy 12mo., the *Pustak Kayast Dharm*, or Duties of Kayaths (No. 341), 8vo., 132 pages, which should certainly have been recorded as a book; "The Origin of the Jats" (No. 295) 16mo., of 24 pages, "The Thousand Names of Krishna," (No. 371), 16mo., of 32 pages, and other similar works. There are several similarly situated pamphlets in Oordoo, Persian and Arabic, such as the *Haqiqut-us-salat* (No. 259), 8vo., 24 pages; in Arabic, or the *Hulliya-i-Sharif*, (No. 276) in Oordoo, of the same size. The Christian tract in Oordoo (No. 316) 12mo., of 84 pages, should perhaps have appeared as a book. The *Educational* pamphlets consist chiefly of primers in the Vernacular or in Persian. Among poetical pamphlets are numerous short pieces in both Hindee and Oordoo. The *Kulliyat-i-mir-Yar Ali* (No. 507) 8vo., of 116 pages, has

been wrongly entered as a pamphlet. Perhaps the *Masnav-i-Gauhar* (No. 446), demy 8vo., of 16 pages, may rightly be regarded as a pamphlet, but the poems just mentioned make up a good-sized volume in comparison. I regret to notice the presence of four pamphlets in Hindee which are styled "amorous poems" (No. 348, 351, 353, 535). The two first are translations of the common Oordoo and Persian love tale of *Laila-o-Majnun*, which is unfit for perusal by the young. Both are published at Agra, and I regret to notice that the first (which sells at 3 pie per copy) is issued at Moonshee Sheo Narain's Press, the *Mufid-i-Khalaiq*. The same proprietor disgraces his press by the publication of the *Raskhan Kavitta* (No. 535), an amorous dialogue between Krishna and Radha, a demy 32mo. of 8 pages, at 3 pie per copy, of 2,100 copies. Nos. 524 and 525 are similarly injurious publications of the same press, of the same size and issue. The corrupt taste of the lower orders of the reading public in large towns is thus painfully apparent, but it is even more sad to find a man of Sheo Narain's position and education lending his press equally with the low Mahomedan publishers of Agra to pander to the vicious tendencies of his fellow townsmen by giving currency to this unwholesome trash. No. 353 is entered as "The Calendar of the love-sick wards of Bindrabun—an amorous poem." It is difficult to know what this means. "Calendar" does not give a good idea of *Bara masi*, many specimens of which will be noticed in the Catalogue. These little books generally contain a few rude and often indelicate verses about Krishna and his gambols for each month of the Hindoo year, beginning with Chyet. That they command a large and ready sale is apparent from the number of copies struck off in the Agra presses. The *Hinu-purushki-barah masi* (No. 163) is a still more flagrant instance of Sheo Narain's reprehensible carelessness, not to say iniquity, in this matter. The literal meaning of the title is "Twelve months of an impotent man," and the tract carries the name of the *Mufid-i-Khalaiq* Press. It consists of 37 couplets, beginning with the letters of the

Nagree alphabet in their order, in which the wife expresses her complaints. It is of course utterly unfit for publication. No. 343, *Arsi Jhagra*, explained in the catalogue as "The Strife of Mirror—an amorous dialogue," is of the Krishna Gopi Series, also published by Sheo Narain. *Arsi* is the looking-glass ring worn by Hindoo women on the left thumb, and the dialogue is between Krishna and a Gopi, whose ring he had possessed himself of.

10. According to the Act a "book" is interpreted to mean anything printed or lithographed; but there appear to be many publications of which the registration is waste of time, and waste of money, so far as the purchase of copies by the Government is concerned. For example, take No. 99, "Rough Sketch of proposed Site of Public Gardens at Meerut" (one sheet); No. 111, "Croquet—its implements and laws," demy 12mo., 17 pages; No. 120, "A memorandum of Testimonials, Certificates, &c., of Syud Ahmed Khan, edited by himself," demy 8vo., 48 pages; No. 160, "Rules and Regulations of the Canning Protestant School at Agra," demy 8vo., 10 pages; No. 234, Prospectus of Roorkee College; No. 387, "Reply to Dr. Clifford's Letter," demy 4to, 3 pages; No. 397, "Catalogue of the Calcutta School Book Society."

Power is vested by the terms of the Act in His Excellency the Governor-General in Council to exempt certain classes of books from the law of registration, which implies the probability that some kinds of publications may be exempted. *Ipso facto*, an exemption is already allowed in the case of Government reports and blue-books, for no "official papers" are registered in this year's catalogue; and there are private publications also of the kind mentioned above, which His Excellency might see fit to dispense with as not worth either the trouble of registering or the expense of buying. The value and importance of Act XXV. are too great to make it advisable to suggest exemptions of a general character, added to which the officers empowered to receive publications are

too numerous to make it likely that all would understand general terms in precisely the same way. I venture therefore to recommend certain specified exemptions only—*viz.*, plans and linear designs, statements of account, schedules of rates, price lists, time-tables, class lists, copies of certificates and testimonials, prospectuses of schools and companies or firms, bank reports, programmes, proceedings, rules of societies, clubs and schools, catalogues, rules of games, copies of letters on private business, and examination papers. The Magistrates might be empowered to return the “three copies” of all these to the senders, merely noting receipt in a book kept for the purpose. I think, too, that “periodicals” might be omitted. The Reporter on Native Newspapers receives copies of all the issues, and there seems no reason why the Government should take three additional copies of every newspaper published. In the catalogue for 1869, some of the periodicals are entered and some are not. All are entered and receive due notice in the statement which I submit annually to His Honor's Government. Moreover, extracts are drawn up in English every week for the information of Government.

*Government reply on above, dated Camp Hurdwar, the 9th
March 1870.*

SIR,—I am directed to acknowledge the receipt of your letter, No. 2684, dated the 18th ultimo, being your report on the publications registered during the year 1869 under the provisions of Act XXV. of 1867.

2. In reply, I am to convey to you the thanks of the Government for this complete and interesting report. The four-fold classification now carried out (books, pamphlets, periodicals and miscellaneous) has rendered the lists more useful, and the results more readily intelligible than before.

3. The number of publications bears a painfully inadequate ratio to the wants of the nation ; but it is so far satisfactory to

find that the numbers have increased from 468 in the previous year to 564 in the present. And, as remarked by you, the increasing use of the vernaculars for literary purposes formerly effected through the medium of Persian, is a hopeful sign. Considerable activity has also resulted from the Prize Notification, which has already borne some fruit, and gives (the Lieutenant-Governor is sanguine) good promise for the future.

4. The number of works published in Hindee nearly equals that in Oordoo; but the former are swelled by the educational series required for the numerous Hindee village schools. Oordoo is, as you observe, "the chosen vernacular of the educated classes."

5. The labours of the Bible Society of Allahabad, and the care with which their translations are executed and brought out, are justly commended in your report. It is remarkable to observe from the details in your fourth paragraph the degree to which the press is resorted to, by both Mahomedans and Hindoos, for religious and controversial purposes.

6. It is to be regretted that the proprietors of Chambers's Cyclopædia have objected to the proposal made, under the auspices of the Maharajah of Benares, for the translation of that work. Such an undertaking could only have tended to bring the Cyclopædia itself under the notice of Native readers, and render the work in the original English to be more sought after.

7. The detail of educational works is interesting, *viz*:—

Published at Native Presses 21 works of 23,380 copies.

Ditto at Government Press 15 ,, of 119,000 ,,

Christian Vernacular Educational Society, Allahabad } 4 ,, of 11,500 ,,

8. The Lieutenant-Governor regrets much to observe that several publications have been issued during the year of a gravely immoral tendency. Two of these especially, in a cheap Hindee form, have been published at Agra by the *Mahommadee* and *Latafat* Presses, managed by two Mahomedans, who have not scrupled thus to pander to the depraved taste of the masses. His Honor observes that you recommend with drawal of license, but it is apprehended that there is no legal power to effect this. The offence is, however, punishable under Sections 292 and 293 of the Indian Penal Code; and the Magistrate of Agra will be instructed to inform the managers of the above presses that the law will be rigorously put in force against them should any works of a similar character again issue from their presses.

9. It has occasioned His Honor much concern to find that objectionable works are also published by Sheo Narain of Agra, and likewise by Newal Kishore. I am to request that you will communicate with these publishers; and it may confidently be anticipated that, after the subject has been seriously brought to their notice, no further instance of the kind will again occur.

10. The proposal for eliminating from registration the classes of papers enumerated at the close of your report, will be recommended to the Government of India.

I have, &c.,

F. HENVEY,

Offg. Secy. to Govt., N.-W. P.

LUNATIC ASYLUMS AT BAREILLY AND BENARES.

*From Inspector-General of Prisons, to Secretary to Government,
North-Western Provinces, dated Allahabad, the 19th April,
1870.*

SIR,—I have the honor to submit the Annual Reports of the Superintendents of the Lunatic Asylums at Bareilly and Benares for the year 1869, along with the following observations.

2. The subjoined statement exhibits the number of lunatics treated, gross expenditure, and average cost per head of the total number under treatment during the year.

Abstract statement of Lunatics treated, and the total expenditure incurred during the years 1868 and 1869.

		1868.		1869.	
		Male.	Female.	Male.	Female.
Remaining on 1st January	...	298	96	269	76
Admitted for the first time	...	162	38	222	81
Re-admitted	...	5	3	6	1
Total,	...	465	137	497	158
Cured	...	82	23	119	25
Improved, transferred to friends	...	12	...	11	1
Escaped	...	...	...	3	...
Died	...	102	38	141	38
Remaining under treatment on 31st December,	..	269	76	223	94
Total cost exclusive of buildings	...	29,854	9 2	34,783	3 6
Average cost per lunatic treated	...	49	9 6	53	1 8

3. There were 655 lunatics, including 46 criminals treated, at a gross cost of Rs. 34,783-3-6, or Rs. 53-1-8 per patient, being Rs. 3-8-3 in excess of the average cost per lunatic treated during the previous year.

4. There has been an increase in the total number of lunatics, amounting to 53 over that of 1868, namely 32 males and 21 females.

5. The daily average number during the year amounted to 365·50, and the average cost per head per annum to Rs. 95-2-8, (*vide* following statement) being Rs. 19-0-7 in excess of the average cost per head in 1868.

6. The above number being about ·002 per thousand on population must represent a very small portion of the actual number of insane persons in the country. What becomes of the rest is a difficult question. Some years ago I endeavoured, under instructions from Government, to gather some statistical information on the question through Magistrates of Districts; the returns submitted gave only a little over 1,200 insanes, including idiots and the inmates of existing asylums.

Abstract statement showing the total cost and average cost per lunatic during the year 1869.

1.	2.	3.	4.	5.	6.
Asylums.	Daily average strength.	Total annual expenditure.	Cost of diet per head per annum.	Cost of establishment per head per annum.	Cost per head per annum including all charges.
		Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Bareilly,	253·62	22,693 1 1	44 14 3½	36 7 8	89 7 7½
Benares,	111·93	12,030 2 5	46 5 5½	56 5 7½	108 0 3
Total ...	365·50	34,783 3 6	45 5 6	42 9 1½	95 2 8

7. The difference in cost per head per annum between the averages of the two institutions is due to the higher market rates of all the necessaries of life during the year, and the comparatively small number of lunatics under treatment at Benares; while the cost of supervision and hospital establishment was nearly the same as at Bareilly, where the daily average number of lunatics was more than double that at the former place.

Statement showing the principal attributed causes, as far as could be ascertained, of mental diseases in the patients treated during the year 1869.

	Number treated.	Percentage to total treated.
Intoxicating Drugs	181	27·63
Intemperance and extreme use of ardent Spirits	17	2·59
Epilepsy	38	5·8
Fever	11	1·68
Other causes	123	18·77
Unknown	285	43·51
Total ...	655	...

8. As in former years a large majority of the attributed causes, as far as could be ascertained, of the mental diseases from which the lunatics treated were suffering, was the excessive use of intoxicating substances.

Statement showing the Mortality in the Lunatic Asylums, during the years 1868 and 1869.

Asylums.	1868.				1869.			
	Population.	Daily average number of Lunatics.	Total number of deaths.	Ratio of deaths to strength.	Population.	Daily average number of Lunatics.	Total number of deaths.	Ratio of deaths to strength.
Bareilly ...	433	283·45	107	37·04	475	253·62	142	55·99
Benares ...	169	108·70	33	30·36	180	111·93	37	33·03
Total ...	602	392	140	35·71	655	365·50	179	48·97

9. The rate of mortality for the year in both institutions, namely, Bareilly 55·99 per cent., Benares 33·05 per cent., is very high indeed. Doctor Corbyn, Superintendent of the former asylum, attributes the excessive mortality to the unusual distress amongst the poorer classes from which the inmates of the institution are recruited. There were no epidemic visitations during the year in the institution under his charge. Doctor Cockburn, Superintendent of the latter institution, considers asthenia to have been the chief cause of the mortality among the lunatics under his charge, in which he says, "the patient gradually pines away and dies without any definite illness, though in few death is accelerated by an attack of bowel complaint." There were five admissions and one death from cholera during the time this disease prevailed epidemically among the general population in and about Benares.

10. The following statement exhibits the duration of confinement at the time of death, and as in former reports shews that a very large proportion of deaths took place during the early stages of confinement.

Statement showing the duration of confinement at the period of death.

[illegible]

Statement showing the duration of confinement at the period of death.—(Concluded).

	Bareilly.		Benares.		Total.	
	Number of deaths.	Duration of confinement.	Number of deaths.	Duration of confinement.	Number of deaths.	Duration of Confinement.
Leprosy	2	...	...	...	2	...
Meningitis	2	...	...	...	2	...
Pericarditis	...	...	1	...	1	...
Softening of Brain	...	...	1	...	1	...
Syphilis Secundaria	1	...	...	...	1	...
Pleuritis	...	...	...	...	1	...
Carcinoma Oris	2	...	1	...	3	...
Vermes Lumbricoeides	3	...	...	...	3	...
Liver Abscess	1	...	...	...	1	...
Hæmatemesia	1	...	...	...	1	...
Old age	9	...	...	...	9	...
Atrophy	5	...	...	...	5	...
Asthemia	10	...	18	...	28	...
Enteritis	...	...	1	...	1	...
Morification	1	...	...	...	1	...
Total	142	...	37	...	179	...

11. The subjoined statement shews the types of insanity from which the patients treated during the year were suffering:—

[illegible]

12. It will be seen from the following statement that a very large proportion of the insanes admitted during the year, namely, 80·91 per cent., were Hindoos.

Statement showing the caste of patients admitted in the Lunatic Asylums during the year 1869.

Asylums.	HINDOO.		MAHOMEDAN.		CHRISTIAN.		TOTAL.		Grand Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
Bareilly ...	136	47	34	17	...	1	170	65	235
Benares ...	53	15	3	2	2	...	58	17	75
Total ...	189	62	37	19	2	1	228	82	310

13. The following statement shows the trade or occupation of the lunatics admitted during the year:—

	Cultivator.	Labourer.	Beggar.	Service.	Shop-keeper.	Weaver.	Barber.	Tailor.	Potter.	Milkman.	Cook.	Dhoonea.	Sweeper.	Sepoy.	Cowherd.	Grog-seller.	Silk-seller.	Lace maker.	Drummer.	Chippiegur.	Prostitute.	Chowkedars.	Singing and Dancing.	Unknown.	Total.	
Bareilly	Male ...	44	24	52	10	7	4	...	...	...	...	3	1	2	...	...	...	...	...	...	...	...	4	1	...	170
	Female ...	9	9	39	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	3	...	...	...	75
Benares	Male ...	17	3	3	6	...	1	1	1	1	1	1	...	...	1	1	1	1	1	1	...	1	...	...	15	58
	Female ...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	17
Total	Male ...	61	27	55	16	7	5	1	1	1	1	4	1	2	1	1	1	1	1	1	1	...	5	1	15	228
	Female ...	11	10	40	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	3	...	...	13	82

Statement showing the trade or occupation of the Lunatics admitted during the year 1869.

14. *Employment of the Lunatics.*—All those able to work have been employed in the more simple kinds of industrial labour, such as mat making, weaving blankets, and tat, gardening, grinding small quantities of grain, and other kinds of light but useful work. The employment of lunatics in this way has not only proved beneficial in the treatment of the patients themselves, but has also been remunerative to the asylums.

15. I visited the Bareilly Asylum on the 14th December, in company with Mr. E. Colvin, Magistrate, Doctor Tomkyns, Superintendent, Central Prison, visitors, and Doctor Corbyn, Superintendent of the institution. The buildings were all in good repair, the inmates seemed comfortable and happy, and the general aspect of the whole place bore evident signs of careful and successful management. There were 26 criminal lunatics (24 males and 2 females) under treatment, of whom 4 were considered fit for removal from the Asylum to the charge of the Magistrates of the Districts from which they had been received, to stand their trial. These cases have already been reported to Government. Two criminal lunatics were transferred, and nine died during the year.

16. The European Overseer has continued to give satisfaction. An European Matron was entertained, as a temporary measure, to attend on an European female lunatic, the circumstances of whose case have already been laid before Government. The European Matron's care of a number of little girls who had been deserted by their parents during the famine and brought to the Asylum, deserves great praise. The different members of the Native establishment were favourably spoken of.

17. I visited the Benares Asylum on the 26th November, in company with Mr. Henderson, Sessions Judge; Doctor Hooper, Superintendent, Central Prison; and Doctor Cockburn, Superintendent of the institution. There were 20 criminal lunatics (15 males and 5 females) in confinement, none of whom were fit for removal from the Asylum. Two

criminal lunatics were discharged cured, and six died during the year.

18. The buildings were all in very good repair. The inmates seemed happy and properly cared for, and the arrangements generally, as far as the constructions of the Asylum would permit, were all that could be desired. The European Overseer, who was in charge at the beginning of the year, died of dysentery in the month of July. His successor and the rest of the establishment have given the Superintendent satisfaction.

I have, &c.,

(Sd.) S. CLARK.

From Superintendent, Lunatic Asylum, Bareilly, to Inspector-General of Prisons, North-Western Provinces, dated Bareilly, the 1st January, 1870.

SIR,—I have the honor to submit the Annual Report of the Bareilly Lunatic Asylum for the year 1869.

*Statement No. 2.**—This statement shows that 240 insanes were remaining on the 1st January, 1869,—231 were admitted for the first time and four re-admitted,—the total number treated amounting to 475. Of these 118 have been discharged, cured; two have been transferred; the two latter were both implicated in different cases of murder of women. On arrival at the Asylum they were found to be feigning madness. A full report was made to Government. A Committee was ordered to assemble at the Asylum, which pronounced the men in question sane, and capable of undergoing their trial before the Session Judge of Moradabad, to which station they were transferred; 142 have died, and 212 remain under

* These statements are omitted, as the information which they convey has already been given in Dr. Clark's report and returns.

treatment. Of the four re-admissions, one was returned to the Asylum one month after his discharge, much emaciated—there were no friends found to receive him. Another, Buldeo, returned three years after his discharge, in a very feeble state, he had no friends and could procure no occupation; his intellect became again aberrated from starvation. The third, Willaet Ahmud, a Mahomedan Fakeer, took to his old habits of using intoxicating drugs, and returned $3\frac{1}{2}$ years after he had been at large. The fourth, a very old woman returned six years after her discharge in a most deplorable condition. Her mind had again given way from the ill-usage she had received from her relations and from starvation.

The man who escaped, did so in a most skillful manner; he was employed in the manufacture of moonj matting; he contrived daily to secure a little of the twine, and made with this a rope-ladder, which he secured about his person. One morning he managed to fasten this to the main wall, and thus made good his escape. He was at large for some time, but eventually returned to his home in Aunlah, from whence he was brought back by his friends. He is a most difficult patient to retain in the Asylum, having a most wonderful method of working his way through any building; he manages to remove a brick generally near a door or window, and gradually excavates a hole sufficient for the body to pass through.

Of the fresh admissions, 15 males and 1 female were criminal lunatics, and admitted under Act XXV., Sections 368 and 369. The two men transferred to Moradabad are included in this number.

		1869.	1868.
Average daily No. of sick throughout the year	...	253.62	283.45
Rate per cent. of cures and transfers on actual strength		25.47	19.86
Ditto of mortality	... ..	29.89	24.71
Ditto ditto on daily average strength		56.12	37.80

Statement No. 3.—This statement gives the nature of insanity of the cases under treatment during the year as follows:—

Nature of Insanity	Remaining on the 31st December, 1869.	Admissions during 1869. Males and Females.	Total.	Males.	Females.	Total.
Mania, Acute	118	99	217	78	21	99
Ditto, Longa	39	33	72	29	4	33
Melancholia	6	14	21	11	3	14
Dementia, Acute	34	35	69	23	12	35
Ditto, Longa	35	34	69	22	12	34
Paralysis Insanarum ... ..	...	...	...	...	...	...
Amentia (Ingenita)	5	15	20	4	11	15
Insipientia (ditto)	3	5	8	3	2	5
Total	240	234	475	170	65	235

In accordance with instructions received in Circular Memorandum No. 113, dated 8th October 1869, from Inspector General of Hospitals, Indian Medical Department, the forms of insanity have been altered according to the list of "Diseases of the intellect," specified at page 41 of the nomenclature of diseases of 1868. For instance, moral insanity has been recorded as mania acute, monomania as melancholia, &c.

Statement No. 4.—This statement shows the attributed causes of mental disease. Of the 475 cases treated, 256, have been traced to physical causes, 149 have been traced to gunja and churru, 6 to ardent spirits, 6 to intemperance, 36 to epilepsy, 11 to fever, 26 to exposure to sun, 9 hereditary, 8 to paralysis, 5 to congenital, 63 to moral causes, and in 156 the cause is unknown. "Intemperance" and

“Ardent Spirits” have again been separated for the same reason as mentioned in my last year’s report.

Statement No. 5.—This Statement shows the caste and sex of the patients admitted. As usual, the Hindoos predominate, being much more addicted to the use of churru, bung and ardent spirits. During the year under review, a great many children, chiefly orphan girls, were admitted into the Asylum.

They were all suffering from aberration of intellect, from want and privation. They were generally found by the police, sometimes in a ditch, often in a field or on some door step, where they had been deposited in those hard times by friends and relations. They were certainly in a most helpless condition, often nothing but skin and bone; and it seemed as if they were past recovery. However, with care and good nourishment, and under the supervision of a European Matron they have improved in a wonderful manner; they can read English, can sew and knit, and it is hoped one of these days will be useful members of society.

The English woman came from Nynce Tal; hers was a sad case: she had been deserted by her husband, who left her destitute in Agra and decamped to England. When first admitted, she was subject to very severe epileptic attacks—she used to have as many as 30 fits in 24 hours—on these occasions she was very violent, attempted suicide, tore her clothes and exposed her person; she was insensible to all around her, and appeared as if quite void of intellect. Kindness, good food, employment and treatment did wonders. I have found the Bromide of Potassium, in 30 grain doses, three times a day, most effective in such cases; it certainly acts like a charm in epilepsy. It decidedly has had the desired effect on this poor woman; her attacks now are few and far between, and very slight; her intellect has partially returned; she appears to have had a good education; she reads well, and has written several affectionate and well-worded letters to her mother—she is an excellent sempstress;

and takes great interest in teaching the young orphans above mentioned; she fancies herself the school-mistress of the Asylum and is perfectly happy.

Statement No. 6.—This statement shows the trades and occupations of those admitted. Beggars and those belonging to the poorer classes of society predominate.

Statement No. 7.—This statement gives the ages of those admitted.

Statement No. 8.—This statement shows the causes of mortality and duration of confinement at period of death. I regret to state that the death ratio has again been excessive, but it must be borne in mind that the year under review has been one of unusual distress, especially among the poorer classes, to which most of the inmates of the Asylum belong. I have enumerated in my former reports the general causes of high mortality in a Lunatic Asylum, and they of course still exist, with the addition this year of all evils attendant on high prices and scarcity of the necessaries of life. This, indeed, would appear to be the chief cause this year of the high mortality; for of the number that died no less than 69 were new admissions, and were mostly received in a wretched state of weakness and starvation; some indeed arrived in a dying condition, and were actually kept alive by nutritious enemata.

In the face of this increased mortality, I am happy to state that the number of cures is larger than in any previous year. In abstract No. 2, 118 are entered as discharged cured; but to this number may be added one female criminal and five male lunatics, who were pronounced sane by the usual Annual Committee, and are now only detained pending the instructions of Government as to their disposal. A soldier of the Sirmoor Battalion has also been pronounced by a Medical Committee "as fit to return to duty." Orders from higher Military authority have yet to be received before he can be discharged.

As usual a great many of the incurable lunatics have succumbed to that gradual decay of mind and body which is a distinctive feature of their complaint.

The Asylum has been entirely free from any epidemic disease.

Statement No. 9.—This statement gives the annual expenditure incurred on account of the Asylum during the year, which, including all charges, amounts to Rs. 22,693-0-1 for 475 patients, or an average yearly expenditure per patient of Rs. 47-12-4, or an increase of Rs. 4-2-3 per individual to that of previous year. This is chiefly due to the famine prices which have prevailed, and the entertainment of a European Matron on Rs. 30 per mensem.

Statement No. 10.—This statement shows the profits of labor of lunatics, which amounts to Rs. 1,151-8-0. This sum represents the actual profit after paying all expenses. Although the Asylum this year contained a large number of helpless paupers who could do no work whatever, the manufactures are prospering better than ever, and the profits are largely increasing. All those mentioned in my last report are still carried on with the addition of tent-making, which is likely to be very remunerative to the Institution.

Statement No. 11.—This statement shows the estimated value of Lunatic Asylum labor, for which cash is not paid, amounting to Rs. 2,154-8-0, for the following occupations:—

Grinding wheat, domestic duties, coolie labor, gardening, tailoring and mending clothes.

General Management.—The details of general management have been entered into in my former reports, and the system still appears to be successful, for the number of cures is larger than in any previous year.

All the subordinates attached to the Asylum continue to give me entire satisfaction.

(Sd.) J. C. CORBYN, Surgeon,
Supdt. Lunatic Asylum.

Report of the Insane Hospital at Benares for the year 1869.

1. *Admissions, &c.*—There have been 72 new and 3 re-admissions during the year,—58 males and 17 females, or 11 more than in 1868. The total number treated amounts to 180 (of which 11 males and 4 females were confined under the Criminal Procedure Code), the average number of inmates being 111·93.

2. Among the re-admissions was a criminal who had been examined in December, 1868, by a Committee of Visitors, and pronounced fit to take his trial; he was accordingly discharged and sent to the district (Bustee) whence he came for that purpose. After being tried and acquitted on the ground of insanity at the time of committing the offence charged (robbery with violence), he was sent back to the Asylum in February, by order of Government, the Magistrate considering it not safe to allow him to go free on account of his liability to attacks of insanity, during one of which he became violent and committed the offence above-mentioned, and as no friends could be found to be answerable for him. He is still in the Asylum, but according to the last order of Government concerning him, can be set free when the Visitors consider him fit; and as he has been very quiet and well-behaved for some months past now, will shortly be recommended for discharge. Another of these re-admitted was a confirmed gunja smoker, who had been once before discharged and re-admitted, his friends bringing him to be taken care of in the Asylum when he gets beyond their control; he has lately been again made over to them somewhat improved, but by no means well;—the third re-admission was in the case of a man given to excessive indulgence in ardent spirits; he has since been discharged.

3. *The Cures and Transfers* amount to 36, or 5 more than during the previous year, giving a percentage of 20 against 18·34. Of these 26 were discharged, cured, and 10 made over to their friends, improved.

4. Besides the above, 2 men (non-criminal) made their escape and have not since been heard of. One had been in the Asylum only 3 weeks, and had been ever since his admission very urgent in his demands to be set free, declaring he was not insane; he was promised that he should soon be discharged if he continued quiet and rational in his behaviour; but nothing would satisfy him, and he made his escape the first opportunity he had, scaling the wall by means of the well bullock yoke, which had been carelessly left within his reach. The other had been about $2\frac{1}{2}$ years in the Asylum and was a quiet, well-behaved, but rather weak-minded man; he would have been discharged had it been possible to find any friends to take charge of him.

5. Among the cures, 2 were criminals discharged under Section 395 of the Criminal Procedure Code, and sent to the districts whence they came to undergo trial for the crimes with which they had been charged previous to their admission, one of them being the man mentioned in paragraph 2, as having been sent back to the Asylum after trial.

6. As regards the *sex and class of cases cured*, there were 24 males and 2 females; among the former the causes of insanity were, in 8, over-indulgence in intoxicating drugs; in 4; ardent spirits, and in the rest, unknown; the causes in the two females were unknown.

7. *Sickness and Mortality*.—Though the daily average number of sick has not been quite so high as in 1868, the mortality,—I am sorry to say, has been somewhat higher as shewn in the following comparative table:—

	1868.	1869.
Daily average number of inmates	108·70	111·93
Ditto ditto of sick... ..	11·09	8·51
Ratio per cent. of deaths to actual strength	19·52	20·55
Ditto ditto to average strength ...	30·35	33·05

There have been as usual a large number of deaths from "Asthenia," in which the patient gradually pines away and dies, without any definite illness in most cases, though in a few death is accelerated by an attack of bowel complaint—4 such cases as the latter will be found entered in Return No. 8, besides the 14 from Asthenia only; there were 8 deaths from dysentery, which was very prevalent in the Asylum (as it was also among the outside population) during the months of July, August, and September. The European Overseer, Mr. Thompson, who had been in bad health for some time previously got an attack in July, and died of it. In April there was one case of cholera, not fatal, and in July, when the disease was very prevalent in the immediate neighbourhood, and in fact all over the station, 3 more cases occurred of which one proved fatal, and in August there was another case, which recovered, making a total of 5 cases with one death.

8. One of the men who died, a criminal, had been upwards of 27 years in the Asylum, though in the register he is entered as admitted in 1850; this, however, is the date of his re-admission, he having been discharged in May of that year, but sent back again in June from the Jounpore Jail, whence he had been first transferred in 1842. He was originally confined for the murder of his mother, and some time between 1842 and 1850, one night murdered two out of four other insanes shut up in the same cell with him. He had, however, been very quiet and harmless for some years past.

9. *Employment*.—Out of an average of 111·93 inmates, 78 have been employed, the nature of the work being the same as usual, *viz.*, weaving cloth, blankets and tât bedding for the use of the inmates, aloe fibre matting and twine for sale, soorkee pounding and various domestic duties. The women being chiefly employed in grinding atta for Asylum use.

10. *Expenditure*.—The total expenses for the past year exceed those of 1868 by Rs. 1,127-5-2, owing chiefly to the very high price of all articles of food, and partly to the larger average number of inmates.

11. *Income--Manufactory Fund.*—A sum of Rs. 119-7-6 has been carried to the credit of the Manufactory Fund, Rs. 48-6-7 not yet realized for articles sold; and the value of manufactured articles in store amounts to Rs. 106-5-4, making a total of Rs. 274-3-5, as profits of labour after deducting cost of materials. Besides this, the estimated value of labour for which no money is received, gardening, various domestic duties, &c., amounts to Rs. 1,411-8-0.

The balance in hand of the Manufactory Fund amounts to Rs. 494-13-9.

12. *Asylum Buildings.*—No changes have been made in these, ordinary repairs only having been effected. The long proposed new Asylum has not yet been commenced. The first estimate as mentioned last year, had not been approved of by the Supreme Government; but a fresh one had been sanctioned, and the ground was being taken up some three months ago, with a view of beginning the work at once, when all further proceedings were stopped owing to the financial deficit.

13. *Conduct of Establishment.*—The European Overseer, Mr. Thompson, as previously mentioned, died in July, and his death has been a great loss to the Institution. His successor, Mr. Waleski, has so far given me satisfaction, and I am in hopes will in time become as efficient as his predecessor. The Jemadar, Meer Imam Ali, and the Native Doctor, Jug-goolall have continued to perform their duties satisfactorily.

BENARES: } R. COCKBURN, ^{*} SURGEON MAJOR,
The 27th January, 1870. } Supdt. Lunatic Asylum, Benares.

FEMALE INFANTICIDE IN AGRA DISTRICT.

Report by R. Benson, Esquire, dated May, 1870.

I am directed by the Hon'ble the Lieutenant-Governor to acknowledge the receipt of a report dated 18th April, by Mr. Benson, submitted with your address of the 30th idem, on the effect of Mr. M. R. Gubbins' system in arresting the crime of infanticide in the Agra District.

2. The report has come most opportunely, and His Honor has perused it with unmixed satisfaction. The memory of Mr. Gubbins may well be cherished by the Thakoors of Agra as that of a great benefactor. When he began to enforce his rules, the proportion of girls to boys was but as 33 to 67; it has gradually risen, and is now as 43·3 to 56·7.

3. No doubt these figures contain, as has been shewn by Mr. Benson, certain elements of error; but there is no reason to question that they exhibit with very sufficient accuracy the general result. And this has been substantially proved by the enquiries made by Mr. Benson in person from village to village, as abstracted in the Form D. appended to his letter.

4. Of the entire number of suspected villages, Mr. Benson visited 80, containing 2,710 families under surveillance. The number of girls under 12 years of age was found to be 1,872, to 2,124 boys, or nearly 47 per cent.; while of girls over 12 there were but 1,156 to 2,298 boys—a remarkable contrast, the result of bygone infanticide. The evil, though no doubt still lingering with prescriptive malignity in some villages and hamlets, has been in great measure successfully grappled with, and to a large extent crushed out.

5. Thus a noble example is set before the District Officers of the present day; and they may now proceed to work in the hope and faith that the same success will attend their labours.

6. A collection of papers on infanticide has already been circulated among District Officers in preparation for further

proceedings under the Infanticide Act on the part of Government. Among these are extracts from Mr. Gubbins' own account of his system. The present forms a suitable sequel, and will be similarly circulated.

7. I am to request that the thanks of the Lieutenant-Governor may be communicated to Mr. Benson for the thorough and able manner in which he has conducted this inquiry, and the intelligent report of its result. Mr. Dashwood also deserves commendation for his timely deputation of Mr. Benson, and the sound instructions by which he guided him.

I have, &c.,

C. A. ELLIOTT,

Offg. Secy. to the Govt. N.-W. P.

Female Infanticide in the Agra District.

At the present time (1869-70) there are 108 villages in the Agra District under surveillance, as being suspected of practising Female Infanticide. Of these 97 were placed under surveillance by Mr. Gubbins, 11 have been added to the list since. In Bah Pinahut Pergunnah there are 51 villages, including these 11, 3 villages† which were on Mr. Gubbins' list are now excluded. In Futtehabad there are 16, in Irradutnuggur 19, in Khyragurh 14, and in Ferozabad 8, as in Mr. Gubbins' time.

†Rajora.
Bichola.
Min Danda.

2. The system of surveillance kept up is the same throughout the district, with the exception that in Bah Pinahut some important additions have been made. It consists in this, that at every Police Station there is a list kept of the suspected villages within the circle; on the birth of a female child in any suspected family in any such village the Chowkedar, who receives information from the Bulahir, is bound to proceed to the thanah and report the fact; he is often accompanied by the father or next representative of the child. In some cases

the Chowkeedar reports any illness that befalls the child before it is six months old; but this is not, I think, universally carried out. In the event of such female child dying before it attains six months of age, the event is at once reported at the Police Station, the officer in charge proceeds to the village and takes the statements of the "Panch," the "Dai" and father, or any other person affecting the inquiry, and then forwards the body and witnesses to the Deputy Magistrate of the Pergunnah, who after holding an inquiry and inspecting the body passes order in the case, ordinarily concluding the inquiry and returning the body to the relatives for disposal; if any circumstances of suspicion existed, the body would be sent to the Civil Surgeon, and the case forwarded to the Magistrate having jurisdiction.

3. In Bah Pinahut, an important addition was made a few years ago to this procedure, by order, I believe of Mr. Hall, when in charge of the Pergunnah. This order was, that in every case the body, after the inquiry held by the Deputy Magistrate, should be forwarded to the Civil Surgeon at Agra for examination; the relative takes the body, and is allowed to remove it after such examination. Another addition in this Pergunnah is that the Putwaree of each village is required to file monthly, in the Tehseelee, a return respecting the suspected families, showing the number of boys and girls under 1, 2 and 6 years, existing in the village, and the number of births and deaths of such children during the month.

4. It would appear from this that the "*preventive measures*," as described by Mr. Gubbins, have been considerably modified. Engagements

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* may have then been taken from the Zemindars, Chowkeedars, &c., but the memory of them even is extinct, and they do not appear to have been taken again on change of Zemindar, &c., &c. Again, except in Bah Pinahut, the Putwaree keeps up

*Of course his ordinary monthly returns contain them. *no special register for these families** nor does he furnish any

monthly return to the thanah. The Thanadar does not

abstract the result of the registration made in his office, or forward any return to the Magistrate.* In fact there is no system working for showing the

* I understand this has been discontinued since 1861. The new progress of the preventive measures, nor any system of testing

the registration. The model system was soon discontinued (about 1855 I am led to believe.) The form of returns in Bah Pinahut seems to be based on certain returns called for by Government in 1865.

5. Briefly Mr. Gubbins' system of registry is kept up but without provisions for testing its working or results, apparently it is supposed to have become a matter of habit. The one point where Mr. Gubbins' system has been amplified is in the case of inquiry after death of a female child under six months; under his system the Thanadar or Darogah could give a final order in the case, at present in all pergunnahs the case goes on to the Deputy Magistrate for order, and, in Bah Pinahut, the body is further always forwarded to the Civil Surgeon.

6. There is one important point of Mr. Gubbins' system which has certainly not been attended to: he says "upon the Chowkeedar's fidelity, the enforcement of these measures mainly depends. He must belong to a different caste altogether, and the Musalman is found to sympathize least with child murder." This has not apparently been heeded, as will be evident from the Statement C. appended, showing the castes of the Chowkeedars in the suspected villages. It becomes a monstrous absurdity when the Chowkeedar who has to watch the offending Thakoors appears himself before you to answer inquiries as to the male and female children in his own family. A foot note attached to the Statement C. details the 25 villages (out of 100) in which this anomalous state of affairs exists.

7. A description has been given of the system of surveillance now in force, it remains to be considered what is the effect of that system; does it maintain the improved state of things to which Mr. Gubbins' measures gave a start?

8. To determine this, returns have been called for from the Putwarees of the several villages. They were required to furnish a return showing the number of suspected families, of boys and of girls at the census of 1865, the same particulars in 1869, the number of births, male and female in these families in the years 1867, 1868, 1869, and the number of deaths of children, also the number of marriages of girls in those years. (In the Bah Pinahut Returns, the first called for, marriages of sons were also included, but were discontinued in the others.) Further with a view to ascertaining the proportion which obtained in other castes between male and female children, returns were called for of the number of boys and girls in those villages belonging to other castes.

With a view to testing the returns of female births, the Thanadars were required to furnish returns of the births reported at their stations during the years 1867-68-69.

9. As has been said, the Putwarees returns for 1865 are supposed to have been based on the census papers; for the number of existing boys and girls, I issued instructions that they should use the information on which they based their annual population return for 1276 Fuslee (sent in October, 1869). For the births and deaths, the Putwarees in Bah Pinahut had their special monthly returns to consult; in the remaining Pergunnahs, Thakoors' births and deaths would have to be selected out of the general records.

10. A remark or two must be made on the way in which these returns are prepared,—the method of collecting the information on which they are based. In the first place as to the number of suspected families, there is no distinct provision in Mr. Gubbins' rules that I can find as to register of the suspected families in suspected villages; albeit he says that one family in a village may practice, and another abhor in-

fanticide, yet in only *one** out of eighty villages visited did I find

* In Bhilooli in Kheyragurh.

any family specially exempted from surveillance. There being no other guide, the Putwaree appears to make it his rule to put every family which comes under the denomination

of "Thakoor" on the list, without any regard to its belonging to a clan known to practice infanticide, or the reverse. "Family" is not used in the English sense, nor does it mean a "house" exactly; those who live "shamil," who eat together form a "family," so that it may consist of two or three fathers of families, or of a single bachelor. In the next place as to the definition of boys and girls: in Mr. Gubbins' lists they are those under 11 years of age. I called for returns of those under 12, but I do not feel certain that the Putwarees have uniformly stuck to this as a rule; however approximately they have no doubt. With respect to the girls there is a variety of practise: a girl may be married, (in one sense, perhaps it might be called betrothed), as early as five, ordinarily the ceremony takes place between 7 and 10 years of age; but she does not leave her father's home to join her husband till she is from 10 to 13 years of age; with respect to these married girls, the Putwaree's practice differs, some strike the girl out of their lists as soon as she is betrothed, some not till she joins her husband, some retain them on their lists even after this if they are under 12; if they are over 12, and at home still some Putwarees strike them off, some keep them on the list. With regard to the births and deaths I believe that the people themselves often neglect to report the event if it concerns a boy, but that knowing the system in force are generally careful to report in the case of a girl.

11. With respect to the accuracy of these returns I am afraid nothing strikingly satisfactory can be said; as regards indeed the returns of present existing boys and girls, I think the returns are in the main and substantially correct; this will be further dealt with subsequently. So do the returns for 1865, excepting Pergunnah Ferozabad (*vide* Statement A.) in this particular seem correct. But as to the births and deaths it is different; in the first place the figures show that in many villages the Putwarees must have included births and deaths of children of other castes, not only the suspected ones (*vide* Statement B.); this was notably obvious in the Irradutnuggur returns, but no change was made by the Put-

warcees, though they were sent back for correction. These errors are rendered obvious by comparing the total of female births reported at the thanah with the Putwarce's return; they should tally exactly in the case of every village; as a fact, this result has seldom been obtained, but an approximate agreement does exist in some places.

Putwarce's Return. Thanah Return. Excess of Putwarce.

Futtehabad,	274	231	43
Irradutnuggur,	573	244	293
Khyragurh,	185	170	15
Ferozabad,	218	124	94

Obviously Irradutnuggur returns are wrong, so too Ferozabad, considering that there are only 8 villages. In the Futtehabad returns, I think the mistake is traceable to two villages. In Bah Pinahut, the returns from the thanahs were incomplete, but an individual scrutiny of the villages does not show improbability in many cases, and the Thanah returns as far as they exist correspond fairly. As to the deaths of girls, the thanah only gives those which occur under six months, thus in Futtehabad out of 162 reported by the Putwarce, 44 were under six months. (By the Thanah return):—

Irradutnuggur	...	...	313	66
Khyragurh	...	...	90	46
Futtehabad	...	...	85	44

With respect to these cases where other castes have been included, of course the mistake extends to the returns concerning boys, so that the proportions will not be generally wrong, only they will not clearly show the proportions amongst Thakoors only.

12. And now, taking these returns, for what they are worth, do they shew favorable results? Does the percentage of girls existing appear a fair one? Is the mortality amongst girls, the proportion of deaths to births amongst them as compared with boys, at an average rate or otherwise?

13. Ordinarily one would think that girls should about equal boys in number, and as the total birth returns for these

villages show that an equal number of boys and girls are born, (*vide* Statement B)., this idea is somewhat confirmed. At the same time when it is found that the proportion obtaining in other castes in the same villages (taking the whole district) is 43 girls in 100 children, we can hardly expect to find 50

* *Vide* his report on female infanticide. per cent. of girls amongst Thakoors. Mr. Moore*

finding that the average proportion was 52 boys to 48 girls, but that even amongst "non-infanticide" villages it was sometimes as low as 58 boys to 42 girls, decided that when there were 60 boys to 40 girls there was good ground for supposing infanticide to exist; but as a limit he decided to rank as suspected villages those wherein the proportion fell below 35 girls to 65 boys.

This perhaps is a point which should rather be brought in when determining the case of each particular village; we may, however, take it that if there are on an average 40 girls to 60 boys or above that, affairs are not very bad.

14. An inspection of Statement A. which is a comparative return with percentages of the number of boys and girls existing in 1854, (January) after Mr. Gubbins' system had been two and a half years in full swing, in 1865 and in 1869, respectively shows that whereas in 1854 the percentage of girls was only 33·4, it had risen in 1865 to 41·4, (or 41·1) and is now 43·3. This would imply a steady progress and a satisfactory result, and when it is considered that in June in 1851, when Mr. Gubbins began his system, there were 1,100 less girls than there were in 1854, and that the percentage must have been some 23 per cent. only, it seems obvious that he dealt such a violent blow at this evil practice as to crush it at once, and set on foot a new and better order of things which has progressed steadily ever since. The progress appears to have been gradual in each pergunnah, the great rise being in every case, except Futtehabad, in the long period 1854 to 1865, and the rise since then being comparatively slight; the rise in Khyragurh, where the proportion has risen to 48 per cent., is greatest. Ferozabad alone seems not to

have progressed sensibly, the proportion being still as low as 37·3 per cent.—only 1·3 higher than it was in 1854.

15. It will not fail to attract attention that though the number of families have increased by above 570 since 1854, and girls by 1,150, the number of boys has decreased by about 150. This does not seem natural and, except that for other reasons which will be detailed below, I believe the present returns to be right, would tend to throw suspicion on them as “cooked” for the present enquiry, more especially as the decrease is on the whole since 1865; whereas the births of boys have been equal to those of girls in 1867-68-69, and the mortality slightly lower. However, even were we to suppose boys had increased, the total could not reasonably be put much above 5,300 instead of 4,888, and this would make the proportion of girls still about 40 per cent.

Ferozabad returns, owing to the mistakes as to 1865, cannot be discussed, but of the other pergunnahs it will be noticed that the decrease in boys is represented as taking place in Bah Pinahut and Futtehabad between 1865 and 1869. In Futtehabad the decrease is very great, but there is also a decrease in girls in the same period. In Irradutnuggur and Khyragurh the decrease is represented as accruing between 1854 and 1865; it is rather large in Khyragurh.

These circumstances could not fail to attract attention and required notice. I will now detail my reasons for believing the results as now stated to be substantially correct—this is the one important point to be looked at.

16. With a view to testing the actual existing state of affairs, I have endeavoured to visit the suspected villages. Owing to the extent and inaccessibility of the pergunnah, and also to want of time, (as I did not receive instructions to take up this subject till I had nearly completed my tour), I only visited 32 of the 51 villages in Bah Pinahut; in Futtehabad I visited 15 (*i. e.* all except one), in Irradutnuggur 19, all; and in Khyragurh 13, all except one. I have not visited Ferozabad at all, and so have no personal knowledge of the 7 Ahir and one Chohan villages which it contains, the Putwaree's returns

are the only authority. In all, 79 out of 108 villages have been visited. In visiting these villages it was primarily my object to find out the number of male and female children existing; for this purpose I had the fathers of suspected families collected, and questioned them as to their families. I took families in the English sense, strictly the children of one father, and arranged my results accordingly; each man was asked how many sons and daughters he had, and then to detail their ages; these I arranged in 4 classes, sons above and under 12, and daughters married or above 12 and under 12 unmarried. I found this fourfold division very useful subsequently. Relations were allowed to speak for their relations when they appeared to have knowledge. In this way I got results which were to a certain extent independent of the Putwaree; in Pinahut and Futtehabad it was very much so as the returns there had not been prepared; in the other two pergunnahs the putwaree had prepared his returns, so that my work was more in the nature of testing his lists, and my object being understood I had a better attendance of Thakoors and a more complete scrutiny; of course it was open to the people to make false statements to me, but for reasons which I need not detail, I am of opinion that they told the truth to the best of their ability; where I did regularly test the Putwaree's lists, I found them as a rule correct or nearly so.

17. Taken as a whole the result of my personal inquiries would be more favorable than that shown by the Putwaree's returns; for on my calculations the *percentage* of female children amongst children under 12 years of age is 46·7 or 3 per cent. higher than the Putwaree's returns. However, it must be recollected that my inquiries did not embrace every single case, and when families were absent from my inquiries care was probably taken that all who had daughters at least should be present, besides in all I only examined 2,710 families, probably about half the whole number, this is obvious also by comparing the totals of children male and female under 12 in Forms A and D. In Pinahut my return is much more favorable, in Khyragurh

and Futtahabad slightly less, in Irradutnuggur as nearly as possible the same.

18. From Statement D. it will appear how small the percentage of daughters is in children above 12. This is perfectly and entirely consistent with the prior existence of infanticide, and its present removal, the sons and daughters above 12 have all been born before 1857, and the majority of course before 1851, naturally the number of daughters amongst them is small, whilst amongst children born since 1857, we find a fair proportion of daughters.

19. Besides the direct evidence of the decrease of infanticide derived from the existence of such a fair proportion of girls, we have other indirect means of judging: for instance, (acting on the supposition that the system of registration works) a comparison of the number of deaths to births amongst girls with that amongst boys should tell us whether there is a suspicious amount of mortality in the former. Statement B. shows that the number of births in either sex being equal (which would point to fair registration) the number of deaths amongst girls is slightly higher, and the mortality consequently greater by 1·5 per cent; this does not seem to me to indicate anything suspicious or alarming,—nay, further, it allays any doubts which might be caused by the frequent recurrence of the verdict on corpses of female infants, that it refused milk and died in consequence. And, be it remarked, this is the utmost that is suspected now a days; the most suspicious persons only say that they think girls are occasionally disposed of by a slow process of starvation, by not being suckled.

20. Again that the Thakoors kill their female infants is no longer a by-word; official and non-official persons, parties independent and interested, all agree in stating that the evil practice has decreased, if not entirely died out, under the system. It is a matter of general opinion, too, that marriage expenses have diminished; this of course is the consequence and result of the system; girls have been born, they have had to be married, and proud fathers have had to reduce their

standard; having once done so, it is easy enough, if not pleasanter, to keep to the new rule, and the motive which kept up the "custom" of infanticide, *viz.*, the desire to avoid expense, is diminished if not destroyed; but that any good can be done towards putting down infanticide by legislating as to marriage expenses, by trying to define a perfectly indefinite amount varying in every case, seems to me an utterly mistaken idea, and altogether beginning at the wrong end. In any case it seems impracticable: if a solitary measure, inefficient, and if combined with registration, unnecessary.

21. A reference to the last column of figures in Statement B. will show that marriages of Thakoor's girls are no rare events; in the last year of scarcity 1868-69 such occurrences were few, but now in the spring of the present year (1870) many "shadis" are going on amongst Thakoor families.

22. With respect to the reduction of marriage expenses, it is hard to say exactly how it has been effected, but it appears to me probable that the relinquishment of the practice of seeking high connections in distant places has had a good deal to do with it. To fetch the bridegroom from any distance, from anything above two or three days journey, considerably adds to the expense. The Thakoors who still contract distant alliances are the prouder clans of the Bhadaurrias, such as the Kulheyas and Acheyas; they do not like to give their daughters except to the Jadons of Karaoli, the Kacheyas of Jaipore, or the Sikarwars of Gwalior; consequently their marriages are still expensive and attended with difficulty. These distant tribes have no scruples about asking a large dowry: they have no daughters to dispose of to render them accommodating. Per contra I found that the Sikarwars of Khyrabad had relinquished the practice of marrying their daughters to the Jadons; the latter were too exigent, and a marriage could not possibly cost less than Rs. 1,000; they therefore contented themselves with alliances with the neighbouring Pomhars of Jugner, and Tomors of Dholpore, and in the case of the former the principle of mutual accommodation would come into play, they too having daughters to be married.

Such marriages, as also marriages amongst the Thakoors of Bah Pinalut, Tomwars, Parihars and Bhudauryas, could be managed for Rs. 200, divided somewhat as follows :—

“ Lagan ”	... ..	Rs. 40
“ Darwaza ” or “ Barothi ”	... ..	,, 40
“ Ankmalli ” (presents, &c.,)	... ..	,, 40
Feeding the Barât	... ..	,, 80

Total Rs. 200.

This would be the lowest expense on an average for a decently conducted affair, but in every case, as always, so now, the expense depends on the bride's father's means. To spend a good deal is probably thought something of, accordingly the expense is exaggerated. A man told me he had spent Rs. 3,000 on his daughter's wedding; I learnt subsequently it only cost half as much. I have stated Rs. 200, but some say it can be done for Rs. 100 or 150; when a man is hard pressed he gets his friends and relations to contribute. That the bride's father should receive money from the bridegroom is no doubt esteemed a disgrace amongst these pure Thakoor clans, still some declared the practice did prevail, though others denied it entirely. There is one form of marriage “ dharm byah ” or marriage made “ hath jorkar,” to which men who are almost paupers have resort, getting the bridegroom to pay the trifling expenses [Rs. 10, 20 or 30; this is not considered disgraceful.

It is asserted that the spurious clans, which are principally in Futtehabad and Irradutnuggur, forming the bulk of suspected Thakoors there, have very generally adopted this practice of taking dower from the bridegroom. Considering that their women are not “ pardanushins,” and that they intermarry amongst each other, never having to go far for husbands, it seems strange they ever should have practiced infanticide, but there is no doubt that they did.

23. There only remains one point, *viz.*, the advisability of discontinuing or modifying the “ preventive measures.”

24. If it is decided to modify them, it will be necessary to take the case of each village individually, with a view to

determining its fitness for release ; this will more properly be done in a separate report. Meanwhile I would just call at-

Vide Statement A.

tention to the very favourable result exhibited by the 11 villages which were put on the suspected list after Mr. Gubbins' time ; there would not appear to be any infanticide in them ; indeed 3 of them are inhabited by a clan of Rathors, which are not even mentioned by Mr. Gubbins as a suspected tribe, and some of the others are a clan of Bhadaurrias, Rawats, known to be not so greatly addicted to the practice.

The villagers themselves say they were put on the suspected list after the mutiny by the then Thanadar of Bah, one Rahman Khan, Nawab of Ferozabad, who acted under the influence of his clerk, one Baldeo Sahai.

25. But, though the results obtained are so far satisfactory that we have an average of 43 per cent. of girls throughout the district in the suspected villages, I do not think this state of affairs warrants at any rate the entire withdrawal of the system in all villages which come up to that mark, and for this reason, that the result has only just been obtained ; twenty years ago infanticide was rife, and a generation has not yet passed ; we can hardly expect the Thakoors of to-day to have become so accustomed to rearing and providing for daughters, or so entirely to have forgotten the traditional custom of infanticide, as that it would be impossible for them to return to their old ways if the restraint were withdrawn. It seems to me that some special supervision should be kept up for say twenty years more, by that time perhaps the custom of female infanticide will have been so entirely eradicated that to rear and cherish female infants will be a rule of habit incapable of infraction. The only question is how much supervision should be maintained ; the system in force has been described. I should imagine it might be relaxed, say in villages where we have 40 per cent. or more of girls, by the withdrawal of the severer and more annoying part ; not that I consider the villagers have any right to complain, for many of those who committed the crime are still alive, and apart from that it is.

but just retribution that a sin of such magnitude should be visited upon the heads of the children of those who committed it. However, no doubt the system of inquest of which I often received complaints, must be in many cases annoying if not painful; the father, a proud Thakoor who has to take his daughter's body in a basket on his head from the village to the thanah, say two or three kos off, and thence to the Deputy Magistrate's office, perhaps another ten or twelve kos, and after that, as in Pinahut, another 18 kos or more to Agra, and then to wait till it is examined, cannot but be put to considerable ignominy and hardship, besides being by his religion obliged to abstain from food for three or four days, and in the end having to perform the funeral rites over what is nothing but a putrid mass. For these reasons I think the amplified system of inquest now in vogue might be abolished or modified. True, it is at present the one deterrent measure which supports the system, and Thakoor Baini Pershaud, Deputy Magistrate, was of opinion, that for this reason it should not be withdrawn, (that is to say, as it existed in Futtehabad and other pergunnahs not including Bah Pinahut,); on the other hand the inquiry is open to the charge of being simply "mamooli" and that the verdict is stereotyped, being just what the "dai" may say; besides under the new Infanticide Law it will be possible to punish omissions of registration which will afford a means of providing for the effectual carrying out of the rules.

26. I am therefore of opinion that the present form of inquest might be dispensed with in the case of those villages which show a fair proportion, (say 40 per cent.) of girls; an inquest held by the officer in charge of the Police Station, he viewing the body, might be deemed sufficient; probably such an officer could not spare the time from his regular duties to visit the villages for this purpose, but it would never be a very great hardship for the parties to have to go to their own thanah; were a special Police force entertained for the suppression of the crime, the work would of course be done through them. With villages not showing so good a pro-

portion the stricter system involving an inquiry before the Deputy Magistrate might be kept up till they could show a permanent improvement. In all cases the registration of female births and deaths under six months at the thanahs should be kept up, and it appears to me that abstracts of these returns should be furnished periodically in order both to judging progress and maintaining efficiency and carefulness on part of the recording officer. It also appears to me that for the purpose of testing and comparison, similar returns to those prepared in Pinahut should be filed every month by the Putwaree of every suspected village. In this way progress could be judged, and the comparison of totals between the returns furnished by Putwarees and Police Officers would afford a means of detecting omissions, and thereupon applying the penalties for non-registration.

27. With respect to those villages which have not made such progress, and in which the proportion of girls is under 40 per cent., I certainly think that in them the system should be kept up in integrity and with care; the full registration should be made, and the inquiry before the Deputy Magistrate continued. This remark touches the case of Ferozabad where 8 villages have only raised their proportion of girls from 36 to 37·3 per cent. since 1854, and there are scattered villages in other pergunnahs similarly situated. If, however, it were held that 35 per cent. was a sufficiently high proportion to exempt from strict supervision, then there would be very few villages which would call for it, but I do not see why 40 per cent. should not be made the standard.

28. I have alluded above* to the indiscriminate method in which all Thakoors in the villages suspected are put down as suspected families: thus we have Tarkars of Furrals, Bhangars of Gwalior, Bes, Gelots, under supervision, that is to say, scattered families of them living in the villages of their connections by marriage, (laying themselves open to be called "sala" and "susur"). I do not know whether some order should not be given respecting these Thakoors, and others in similar case,

* *Viz.*, in para. 10.

being put on the list or not. So too it is often the case that a particular *nugla* (hamlet) of a village makes the percentage of a whole village appear bad, it alone being to blame, or that one *nugla* which is to blame is saved by the rest. These are all pure matters of detail, which can only be dealt with as individual cases, but it is as well to call attention to them.

29. In conclusion, my wish to embody in this report all the general information I had collected must be my excuse for its length. I am conscious that no more than a broad general result has been attained, and that the returns are open to criticism, and that my personal inquiries have not been thorough.

For the latter, my only excuse is that, when I began and for some time afterwards, I did not so clearly comprehend the subject, or understand how to act, as to conduct my inquiries in a manner which I can now see would have been more satisfactory.

18th April, 1870.

(Sd.) T. BENSON,
Asst. Magistrate.

A.

Abstract of Returns respecting the Villages in Agra District and Girls in January, 1854, (after 2½ years of Mr. Gubbins's

Pergunnah.	Number of village.	Families.			Boys.		
		1854.	1865.	1869.	1854.	1865.	1869.
Bah Pinahut ...	40	1,527	1,767	1,789	1,695	1,903	1,760
Futtabad ...	16	1,017	1,119	1,081	1,002	1,172	855
Iradutnuggur ...	19	1,106	1,150	1,176	1,038	943	975
Khayragurh ...	14	842	788	943	839	571	589
Ferozabad ...	8	531	548	608	567	1,146 (say 646)	729
Total ...	97	5,023	5,322	5,597	5,141	5,735 (say 5,235)	4,888
Villages in Bah Pinahut not in Mr. Gubbins's list.	11	...	219	227	...	176	180
Grand Total ...	108	...	5,541	5,824	...	5,911 (say 5,411)	5,068

suspected of Female Infanticide, showing the Number of Boys system, at the census of 1865, and in October, 1869.

Girls.			Percentage of girls.			Remarks
1854.	1865.	1869.	1854.	1865.	1869.	
807	1,282	1,239	32.2	40.2	42.2	There are eleven more villages given separately below.
577	740	650	36.5	38.7	43.5	
527	780	815	33.5	45.2	45.5	
337	475	546	28.7	45.4	48.1	
336	781 (say 381)	434	36.0 (say 37.0)	40.5	37.3	There is an obvious error in the returns of 1865 as to boys and girls; 1,146 and 781 are absurd; one by 500 the other by 400 (say) too large.
2,584	4,058 (say 3,658)	3,734	33.4	41.4 (say 41.1)	43.3	
...	179	170	...	50.4	48.5	
...	4,237 (say 3,839)	3,904	...	41.7 (say 41.4)	43.5	

*Abstract of Returns as to Births, Deaths and Marriages of
during 1867,*

Pergunnah.	Number of villages.	Number of families in 1869.	Number of Births.		Percentage of Births.		Number of Deaths.	
			Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Bah Pinahut ...	51	2,016	512	606	45.7	54.2	184	245
Futtehabad ...	16	1,031	305	274	52.6	47.3	146	162
Iradutnuggur ...	19	1,176	569	573	49.8	52.0	352	313
Kheyragarh ...	14	943	215	185	53.7	46.2	84	90
Ferozabad ...	8	608	254	218	53.8	46.1	102	85
Total ...	108	5,824	1,855	1,856	50.0	50.0	868	895

B.

*Children of the Families of Suspected Villages in Agra District
1868 and 1869.*

<i>Percentage of Deaths.</i>		<i>Percentage of Deaths to Births.</i>		<i>Number of girls married.</i>	<i>Remarks.</i>
<i>Boys.</i>	<i>Girls.</i>	<i>Boys.</i>	<i>Girls.</i>		
42.8	57.1	35.9	40.4	230	
47.4	52.6	47.8	59.1	201	
53.0	47.0	61.8	56.3	130	Here some births and deaths have been wrongly included; probably 569 and 573 are each 300 too much.
48.2	51.7	39.0	48.6	101	
54.5	45.4	40.1	38.9	80	Here the births and deaths are too large (by 80 or 100).
49.2	50.7	46.7	48.2	742	

C.

*Abstract of Returns showing the Caste of the Chowkeedars in
Female*

Pergunnah.	No. of villages.	Musalmans.	Brahmins.	Thakoors.	Dhanu's.	Kayaths.	Ahirs.	Chowbes.	Kachees.	Lodhees.
Bah Pinahut ...	51	11	40	11	7	5	2	1	1	1
Futtehabad ...	9	3	10	8	...	...	...	...	...	...
Iradatnuggur ...	19	9	13	3	...	1	1	...	...	...
Kheyragurh ..	14	5	8	5	...	1	...	...	...	...
Ferozabad ...	7	...	1	...	3	...	3	...	...	...
Total ...	100	28	72	27	10	7	6	1	1	1

Foot-note. Showing the villages in which there

Bah Pinahut, viz, in Reha, ...	2	Futehabad, viz, in Kundol ...	1
Thakoors 11 in 9 villages: Karkoli 1		Thakoors in 7 villages:	
Keori 1		Meoli Kullah ...	1
Lalpora 1		Meoli Khoord ...	1
Ballai 2		Naddota ...	1
Bamroli 1		Ihtimadpore Agnerca 1	
Khera } 1		Kolara Khoord ...	1*
konwar }		Baroali Gurar ...	2
Kenjra 1			
Man 1			

the several Villages in Agra District suspected of practising Infanticide.

Gujars.	Garhariyas.	Baniyas.	Nais.	Chobdars.	Goluparlao.	Bhangis.	Total.	
1	1	...	...	...	...	...	81	
...	...	...	...	...	...	...	21	The Thanadar of Nabohra neglected to furnish returns of six villages in his circle, and the Thanadar of Fatehabad of one in his.
...	1	...	...	...	1	1	30	
1	...	2	2	1	...	...	25	
...	...	...	...	...	...	...	7	No return of one village in circle of Narki Thana.
2	2	2	2	1	1	1	164	

are Chowkeedars of the suspected caste.

Iradutnugger, viz. in Khera ... 2	Ferozabad, viz. in Byepura ... 1
3 Thakoors in 2 villages, Bisehra ... 1	3 Aheers in 3 villages : Ranipura, 1
Kheragurh, viz. in Bhilaoli ... 1	Gundan ... 1
5 Thakoors in 4 villages : Songaieh, 1	
Dargawan ... 1	
Bargawan Khoord ... 2	

D.
Abstract of Results of Personal Inquiries made in Suspected Villages in four Pergunnahs.

Pergunnah.	Number of villages visited.	Number of families inquired.	Sons.			Daughters.			Percentage of Female Children in all.			Remarks.
			Above 12.	Under 12.	Total.	Above 12, or married.	Under 12, unmarried.	Total.	Above 12.	Under 12.	Children.	
Dah Pinahub,	32	761	596	551	1,147	390	601	991	39.5	52.1	46.4	
Futtehabad ...	15	493	420	419	839	269	316	585	39.0	41.7	41.0	
Iradnuggur,	20	853	730	665	1,395	327	564	891	31.0	45.6	38.9	20 villages includes Inayatpore not returned by Putwaree.
Kheyrgurh ...	13	604	552	489	1,041	170	397	567	23.5	44.8	35.2	
Total ...	80	2,710	2,298	2,124	4,422	1,156	1,878	3,034	33.4	46.7	40.6	

(Signed) H. W. DASHWOOD,
Magistrate.

FEMALE INFANTICIDE IN PERGUNNAH BARA,
ZILLAH ALLAHABAD.

Report by T. W. Rawlins, Esquire, Assistant Magistrate of Allahabad, dated the 18th April, 1870.

I HAVE the honor to inform you that, in compliance with your request, I made a careful enquiry, during the last cold season, as to the practice of Female Infanticide by the Rajpoot clans of the Bara Pergunnah in this district; and I now submit my report on the subject, together with three statements which embody the statistics I have collected.

1. Owing probably to the destruction of Government records during the Mutiny, I have been unable to obtain any accurate data as to the extent to which the crime prevailed in former years, and the success which had attended the efforts to put it down before the Mutiny. All that can be clearly ascertained is, that while carrying on Settlement operations in Bara in 1839, Mr. Montgomery made the discovery that it was practiced to an alarming extent by the Purihar, the Kuchwah, and the Bhurdewariya clans; and that, finding remonstrance of no use, he instituted a system of check, under which a chuprassie, placed for the purpose in each suspected village, the goreyt, the chowkeedar, and the village midwife, were bound to report the birth of every female child at the thanna; and the Thannadar, in company with the Tehseeldar, was required to hold an inquest on it should it die; and afterwards to send the body to the Civil Surgeon for examination.

2. So successful was this system found to be, that while in 1840, the first year in which it was tried, only three female infants among the guilty clans survived their birth, there were 14 alive at the end of 1841, and 28 at the end of 1842; from the latter date until the Mutiny I have been unable to obtain any statistics, for the Census returns of 1853 make no distinction between the suspected and other castes, or between children and adult of either sex; but there is reason to believe

that Mr. Montgomery's system was carried out with considerable care.

3. After the restoration of order, no steps appear to have been taken to re-introduce a system of surveillance until 1864, when Mr. Ricketts, who was then Magistrate, appointed a special Native officer for that purpose. It is that officer's duty to keep a careful watch over every pregnant Rajpootni of the suspected clans, through the agency of the village midwives and chowkeedars; and should she give birth to a female infant, personally to assure himself of its existence until it be past the age of danger. The results of these observations have been regularly forwarded to the Magistrate in the shape of a fortnightly report. This system had not been in force sufficiently long, when the Census was taken in 1865, to have had any effect on the practice, did it then exist; but the returns of that year, exhibiting as they do a population of 438 female Rajpoot children to one of 567 male children in the Bara Pergunnah, compared with the state of things discovered by Mr. Montgomery in 1839, show what a great reform had been brought about in the interval.

4. Before commencing my inquiries, I caused an extract from the last census papers to be prepared, showing, in respect of each of the 112 villages in which Rajpoots had been enumerated, the number of male and of female children of the Rajpoot and of other castes respectively. I then had separate Hindee forms prepared for each village, in which the putwarrees were directed to record with care, the name of the head of each separate household, the number of boys and girls born since the Mutiny which it contained, the number of girls who had been married since that time, the cost of each marriage, and the number of unmarried adult males and females. After these forms were returned to me, I allowed some time to elapse in order that if they were incorrectly filled in for the purpose of deception, it might be supposed that the enquiry was at an end, and so the exact return made

in each case might be forgotten. I then visited each of the villages, and with the extract from the census papers, and the Putwarry's return in my hand, called together the zemindars and the Rajpoot community, and filled in afresh the whole of the forms that had been supplied to the Putwarrees. I did not insist, as other officers have done in similar enquiries, on the production of all the girls enumerated. I had chosen the Mutiny year as a conspicuous landmark, as a parent would seldom be unable to remember whether a child had been born before or after it, but they might in many cases have felt strong objection to my seeing a girl 12 years of age; and this feeling would have induced them either to omit all mention of their elder girls, and thus falsify the returns, or to attempt to pass off as Rajpootnis the children of other castes. But although I did not insist upon the production of the girls, I saw great numbers of them casually; and I fully believe that the returns I have obtained are correct. The possession of the Putwarree's returns was an invaluable check. In most cases the numbers obtained by me differed from them; but almost invariably on my enquiring into the reason of this, I found that it was due to a misapprehension of the meaning of some of the columns in the form, and not to any *mala fides* on the part of either parents or Putwarry. In the same way my return often differed in a marked manner from the census extract; but on enquiring into the births and deaths of children since 1865, the discrepancies were with scarcely an exception naturally accounted for. Lastly, the whole population of the village was generally present, and the natural way in which a parent while enumerating his family would be corrected by his neighbours, and even by his own children, and the arguments that would thereupon follow,—all convinced me that there was no attempt made to throw dust in my eyes.

5. From the information I thus obtained, I have prepared the statements contained in Appendices A., B. and C. Appendix A. shows, in respect of each of the 106 villages in which Rajpoots children were found in 1865, the number of male and

female children of the Rajpoot and of other castes, and the percentage which the female children of each class bore to the entire child-population. A reference to Appendix B. will show that in 87 of these only did I find any resident Rajpoots; and the following table shows the results of the Census of 1865 in respect of those villages :—

No. of villages	No. of Rajpoot boys.	No. of Rajpoot girls.	No. of boys of other castes.	No. of girls of other castes.	Percentage of Rajpoot girls.	Percentage of girls of other castes.
87	560	438	3,518	2,877	43.88	44.98

6. Appendix B. shows, in respect of each of the 93 villages in which I found Rajpoot families, the number of families of each clan which it contains; and in respect of each clan, the numbers of male and female children, the number of marriages since the Mutiny, and their average cost, and the number of unmarried adults, male and female. It also shows the present percentage which Rajpoot girls bear to the total number of Rajpoot children, and that borne at the Census in each village by the Rajpoot girls, and those of other castes. An abstract of these statistics is shown in the following table :—

No. of villages.	No. of clans.	No. of families.	No. of Rajpoot boys.	No. of Rajpoot girls.	No. of marriages since Mutiny.	No. of unmarried adult Rajpoots.	No. of unmarried adult Rajpootness.	Present percentage of Rajpoot girls.	Percentage at census of Rajpoot girls.	Percentage at census of girls of other castes.
93	35	503	429	412	232	348	57	48.97	43.88	44.98

7. The information given in Appendix C. is identical with that given in Appendix B.; but while the latter is designed to

exhibit the statistics of each village separately, the former shows the distribution and population of each clan, through the various villages in which it is found. I have given the names of the different clans as they were given to me, without any attempt to arrange them in their proper groups and sub-divisions; but in only 11 of the 35 clans are there more than ten families, and in only 29 do any children under 12 years of age exist. In 13 of these, the number of girls exceeds that of boys, in 13 it is less, and in 3 it is exactly equal. Omitting those clans in which the number of children is too small to allow any fair inference to be drawn from averages, it appears from the following table that in the case of one only does the percentage fall below 40 :—

No.	Name of clan.	Total child-population.	Percentage of girls.
1	Baghel ...	182	45·44
2	Bais ...	163	46·01
3	Purihar ...	118	55·8
4	Biseyn ...	80	42·5
5	Chundel ...	45	48·88
6	Bhurdewariya ...	43	62·78
7	Kuchwah ...	32	68·75
8	Guburwar ...	39	46·15
9	Sandel ...	30	40·
10	Chauhan ...	19	31·63
Total ...		751	48·86

8. It is a remarkable fact that the Purihars, the Bhurdewariyas, and the Kuchwahs, who were formerly the most notorious for the crime, now show such a high percentage of girls; and had I not carried on the enquiry myself, I might have inferred that they had intentionally given an incorrect return of the number of their female children, in order to divert suspicion; but I was especially careful in testing the returns of these clans. Moreover, if there had been any general wish among them to falsify the returns, it might have been

expected that it would be shown in a general tendency through all villages and families to put the number of girls at a higher figure than that of boys. The contrary of this is the case ; in most cases the number of girls is about equal or a little less than that of boys, and has been swelled by a few exceptional cases, in which the girls of a family greatly outnumbered the boys.

9. The number of girls married since the Mutiny is 247. I have noted the approximate cost of each of these marriages in the village returns, and in Appendices B and C, I have shown the average cost of each in the different clans in each village ; but I have not attempted to deduce the average cost through the Pergunnah, or through the whole of each clan, as the disturbing influence of a few very expensive marriages would have destroyed their value. A reference to the original returns, however, will show that while a considerable number of even the more exclusive tribe were able to dispose of their daughters without a dowry at a cost for food of less than Rs. 50 each, the vast majority of marriages cost less than Rs. 250.

10. In connection with the number of marriages that have occurred, it is interesting to notice the number of unmarried adults, male and female ; of the former there are 343, of the latter 57. These figures would at first-sight lead one to suppose that the crime of infanticide had not even been checked ; but when it is observed, that the vast majority of the adult males are elderly men,—the brothers or uncles of the heads of families,—while with scarcely an exception the females were their daughters or nieces, this very disproportion of the sexes affords a proof of the reformation that has been effected in the last 30 years. Most of the men are those who, born before the introduction of preventive measures, were unable to obtain wives, owing to the destruction of their contemporaries of the other sex, while nearly all the women have been born since 1839, and are not probably very much fewer in number than the unmarried men born since that year.

11. The fact that there are 57 unmarried Rajpoot women (15 of whom belong to the three clans), is in itself a strong proof that the crime of Female Infanticide has for many years past been on the decline; and the readiness with which the fact has been admitted, shows that to a great extent at least a Rajpoot has ceased to regard the existence of an unmarried daughter as an indelible stain upon his family. The crime, so long on the decline, has now, I believe, almost ceased to exist as a practice in Bara; for, although cases of the murder of female infants have been known to occur within the last 4 or 5 years, the motives for the crime were such as would have led to the murders were the children male. All classes in the pergunnah, while they unite in admitting the former prevalence of the crime, say that it is now a thing of the past. And it is rather a significant fact that one of the few girls' schools in the district has been set up at Manpore, which contains the largest Rajpoot population of any village in the pergunnah, including 30 families of Purihars, and is largely attended by their girls.

I have, &c.,

(Sd.) T. W. RAWLINS,

Late Asst. Magistrate.

*Reply of Government on above, dated Allahabad,
May, 1870.*

I AM directed by the Hon'ble the Lieutenant Governor to acknowledge receipt of your letter dated 11th instant, with which you submit a report by Mr. Rawlins, prepared at the instance of the Magistrate, Mr. J. C. Robertson, on the result of measures for checking the crime of infanticide among the Rajpoot tribes of Pergunnah Barra, in the Allahabad District.

2. Following the similar report of Mr. Benson for Agra, this paper possesses, especially at the present moment, a peculiar value, and like it will be circulated among all District Officers.

3. The preventive measures introduced by the Magistrate, Mr. R. Montgomery, above 30 years ago, very much resemble those adopted at a later period, and over a larger area, by Mr. Gubbins in the Agra District. The success is shewn to have been marvellous. In the first year, 1840, "only 3 female infants among the guilty clans survived their birth;" in 1841, there were 14; and in 1842, no less than 28 female children alive. From that date there are no means of tracing progress till the Census of 1865, when we find among the same clans no fewer than 438 girls, forming 44 per cent. of the child-population.

4. The returns were recently tested in person by Mr. Rawlins and so far as the means at his disposal went, their general accuracy was proved beyond doubt. In 93 villages that officer found 412 girls under 12 years, to 429 boys; shewing the percentage of girls to be 49. And what is most striking in the three clans—Kuchwaha, Bhurdewariya and Purihar, formerly the most notorious for infanticide—the girls now exceed the boys, the percentages being 69, 63, and 56 respectively.

5. Perhaps the most encouraging feature in these proceedings is the evidence that a system effectively enforced takes root and holds its ground. The habit once broken in the Bara Pergunnah shewed no tendency to revive, even when the repressive agency was discontinued.

6. Mr. George Ricketts, C. B., deserves much credit for re-introducing the system in 1864. But the Census returns following immediately after, and now shewn to have been substantially accurate, afford full proof that quite independently of Mr. Ricketts' measures, the crime had ceased to be prevalent.

7. These most gratifying results are therefore mainly due to the rules put in force by Sir Robert Montgomery in 1839. Equally with Mr. Gubbins, does Sir Robert Montgomery thus stand in the light of a benefactor of the Thakoor race.

And it will now be a proud and grateful reflection to that distinguished philanthropist to hear that the result of his remote labours has been to prevent the annual sacrifice during these many years, of some forty female infants, and to eradicate almost the memory of the crime.

8. Very remarkable also is the presumption raised by these papers, that if female infants are once saved, provision for them by marriage, and reduction of marriage expenditure, follow as a natural consequence. There are in the pergunnah 57 unmarried adult women; but the possession of an unmarried daughter is said no longer to be viewed as a disgrace. It is observable that there are no less than 343 adult bachelors; but these are for the most part elderly men, belonging to a period when the girls who, if spared, would have been eligible for their wives, were destroyed at their birth.

9. Such are the results of purely preventive arrangements. It will be interesting to ascertain what has been the corresponding effect of the indirect measures resorted to elsewhere in the limitation of marriage expenses. The subject may advantageously be enquired into, and results shewn by Mr. Lane, in reference to the system introduced into Mynpoory by Mr. Charles Raikes, C. S. I.

10. I am to request that the thanks of the Lieutenant-Governor may be conveyed to Mr. Rawlins, for his careful investigation and excellent report.

11. His Honor requests that you will report more in detail regarding the "Special Native Officer" nominated by Mr. Ricketts to the duty of checking the births and deaths of Rajpoot infants in this pergunnah, what his pay is, and how defrayed. The other duties by the goreyt, chowkeedar, and midwife are, it is presumed, performed without further pay as a part of their village duties.

I have, &c.,

C. A. ELLIOTT,

Offg. Secy. to Govt.

ALLAHABAD PUBLIC MUSEUM AND LIBRARY.

*Report by W. Walker, Esq., M. D., M. A., dated Allahabad,
the 6th April, 1870.*

SIR,—With the approval of the Committee of the Allahabad Public Museum and Library, I have the honour to submit a short Report on the working and financial position of the Institution on the 31st March, 1870. The Committee are again constrained to express a feeling of disappointment that so little progress has been made towards the erection of a building in which the Library might be considered safe, and where the public might consult the books in comfort.

2. The Committee have to tender their thanks for the following contributions to the Museum :—

I. From W. Johnston, Esquire.—A Cabinet of Medallions in Stucco.

II. From Doctor W. Walker.—A Cabinet containing 420 specimens of Indian and Burmese Timbers, with a Catalogue. Each specimen is polished and varnished on one side and plain on the other.

III. From W. Oldham, Esquire, C. S.—31 specimens of Terra Cotta from Ghazeepore.

IV. From Secretary to the Central Committee, Agra Exhibition :—

1. A set of Chinese Chess-men in Ivory.
2. A Black Marble Chair.
3. Four Oil Paintings of Hill Scenery in the Madras Presidency.
4. Two Native Shields.
5. A Carved Lintel and Door-posts.
6. Two Native Whips with ornamental handles.
7. A Steel Hatchet, handle forming a Pistol.
8. A Dagger.
9. A Sword.
10. A Hatchet.

11. A Kookrie.
12. An Ornamented Scabbard.
13. A Side Table with Chess-board Top in Ivory and Ebony : border of Table and legs richly ornamented in Ivory.
14. A Wooden Box inlaid with Mother-of-Pearl
15. A Table Cover embroidered in Silk.
16. One piece of Kincob.
17. One piece of Silver Cloth.
18. A Model in Clay of an Indian Bazar.
19. 3 Packets containing 16 Manilla Photograms, 19 Madras Photograms, and 15 Madras Stereograms.

3. During the year the following works have been presented to the Library, and the Committee desire to return their thanks to the donors :—

I. *From the Hon'ble Sir William Muir, K. C. S. I.*
—Zeitschrift der Deutschen Morgenländischen Gesellschaft.III. Vols.

II. *From the late Hon'ble A. Roberts.*—A copy of Murchison's Silurian System, in two volumes, with plates in separate case.

III. *From Captain A. H. Bagge, R. E.* (through Colonel W. H. Greathed):—

- a. English and Siamese Vocabulary ... I. Vol.
- b. English and Burmese Dictionary ... I. „
- c. New Testament in Burmese ... I. „
- d. “ The *Dammatatt*, ” or the Laws of Menoo, I. „

IV. *From Secretary to the Central Committee, Agra Exhibition* :—

- a. English and Canarese Dictionary ... I. Vol.
- b. Indian Journal of Arts and Science, Vol.1, I. „
- c. Two Volumes in Canarese (subject unknown), II. „

V. *From E. T. Atkinson, Esquire, C. S.—*

- a. Manual of Rent Law ... I. Vol.
- b. Questions on the Unrepealed Circular Orders
of Board of Revenue, North-Western Pro-
vinces, from 1848 to 1857 (Pamphlet). } I. „

VI. *From Proprietor, "Delhi Gazette" Press.*—A copy of *Delhi Gazette* for the year 1869.

VII. *From Proprietor, "Pioneer" Press.*—A copy of *Pioneer* for the year 1869.

4. In addition to the above the Library has received 184 Books and Pamphlets from Government, and the Committee have added by purchase and exchange of duplicates the following works:—

Title of Book.	Author.	No. of volumes.	Size.
Mechanics' Magazine complete, from its commencement to 1868 (old and new series). Lon. 23—68 ...	...	89	8vo. & 4to.
Life and Opinions of General Sir Charles James Napier, G. C. B. Lon. 57 ...	Napier, W. ...	4	8vo.
Hansard's Parliamentary Debates for 1867 and 1868 ...	...	9	4to.
Annual Register (Dodsley), 1865 to 1867 ...	Dodsley, J. ...	3	8vo.
Indian Polity: a view of the system of Administration in India. Lon. 68 ...	Chesney, G. ...	1	

Title of Book.	Author.	No. of vols.	Size.
The Annals of Rural Bengal, 3rd Ed. Lon. 68 ...	Hunter, W. W. ...	1	
Weale's Rudimentary Series, to complete the set already in the Library ...	...	104	12mo.
Flora Sylvatica: being figures and descriptions of the Timber Trees of India, Parts I., II., III. Mad. 69...	Beddome, R. H. ...	1	4to.
Magazine of Botany, and Register of Flowering Plants. Lon. 34—49...	Paxton, J. ...	10	8vo.
Histoire des Insectes. Coleopteres, with Atlas (in sep. volume). Paris. 54-66 ...	Lacordaire, M. H.,	8	8vo.
The Naturalist on the River Amazon. Lon. 63,	Bates, H. W. ...	2	
Encyclopædia of Plants. Lon. 66 ...	Loudon, J. C. L. ...	1	
The Empire, Lon. 63 ...	Smith, G. ...	1	
Letters of F. M. Bartholdy, 1833 to 1847, Lon. 63 ...	Bartholdy, P. M.,	1	
Collected Papers (Original and Reprinted) in Prose and Verse, 1842—1862. Lon. 62 ...	Grote, Mrs. ...	1	
Illustrations of the Comparative Anatomy of the Nervous System. Lon. 35 ...	Swan, J. ...	1	4to.
Rare and Remarkable Animals of Scotland. Lon. 47 ...	Dalyell, J. G. ...	1	
Plates of Holothuria Medusæ ...	...	1	12mo.

5. The Catalogue of the Library is now passing through the Press. Its publication, the Committee feel, will not only facilitate reference, but will enable the wants of the Library to be easily communicated to similar public Institutions, by whose aid our deficiencies may be supplemented.

6. Subjoined is a Statement of the Museum and Library Accounts, showing a balance at credit of Rs. 9,587-9-11 on the 31st March, 1870, exclusive of the sum of Rs. 3,336-8-0 at the credit of the "Building Account." The allotment of Rs. 3,600 for the current year has not yet been drawn from the Collector; with it the credit balance of the Institution will stand at Rs. 13,187-9-11.

*Cr.**Dr.*

1869.			Rs. As. P.		Rs. As. P.
April ...	1st,	To Balance in hand on the 31st March, 1869 ...	7,230 0 5	By Purchase of Books ...	816 11 0
				By transit charges on above,	36 9 3
May ...	"	To Cash received from the Collector of Allahabad, being allotment for 1869 ...	3,600 0 0	By Remuneration to a Clerk @ Rs. 25 per mensem ...	300 0 0
				By Petty Contingencies ...	89 2 3
					<hr/> 1,242 6 6
				By balance in hand on the 31st March, 1870 ...	9,587 9 11
		Total ...	10,830 0 5	Total ...	<hr/> 10,830 0 5

I have, &c.,

W. WALKER,

Secy., Govt. Museum and Library Committee.

Government reply on above to Secretary to Government Museum and Library Committee, Allahabad, dated 3rd May, 1870.

SIR,—I am directed to acknowledge the receipt of your letter No. 1, dated the 6th ultimo, being a report on the

proceedings of the Allahabad Public Museum and Library during the past year.

2. In reply, I am desired to say that the Lieutenant-Governor still regrets that circumstances have prevented commencement of the building for the Library. Plans are now under the consideration of the Thornhill Memorial Committee, who are also on the point of selecting a site ; so that it may be hoped the want will before very long be supplied.

3. His Honor bids me add that, looking to the ample balance in hand, the purchases made on account of the Library might perhaps have been more extensive. No doubt, however, the balance will be required to a considerable extent for fitting up the new building when it is ready.

I have, &c.,

(Sd.) F. HENVEY,

Offg. Secy. to Govt. N.-W. P.

Art. XX.

METEOROLOGICAL OBSERVATIONS OF THE NORTH-WESTERN PROVINCES FOR THE YEAR 1869.

Report by Murray Thomson, Esq., M.D., Reporter on Meteorology, North-Western Provinces, dated 30th April, 1870.

I HAVE the honour to submit the Report on Meteorological Observations for the calendar year of 1869.

Observing Stations.—Complete monthly registers have been obtained from four minor and thirteen chief stations. The former stations are Seetapore, Fyzabad, Nagode, and Nowgong, and the latter are Chuckrata, Dehra, Roorkee, Nynce Tal, Meerut, Bareilly, Futtehghurh, Agra, Lucknow, Goruckpore, Ajmere, Benares, and Jhansie. Allahabad should have found a place among these stations, but here the observations were interrupted for four months, partly by the incomplete state of the observatory, and partly by the death of Dr. T. Dillon, the officer in charge of it. Dr. Dillon's successor is Dr. J. C. Bow, who is himself an able meteorologist; and since he has taken over charge of the Allahabad Observatory, he has taken the greatest interest in it, and I fully expect that Dr. Bow will, during the current year, be able to send a very good set of observations.

The four minor or second-class stations, with the exception of Nowgong, have sent registers for several years past. I have endeavoured to keep these on, as the registers sent seemed to be the most carefully kept of any of the second-class stations. I must, however, here repeat that the instruments used are only a thermometer and a rain-gauge, and these are unattested as to correctness. I believe that fair attention is given to the reading of the above instruments and recording the weather observations generally. In addition to the tables showing the results from these seventeen stations, I am enabled to publish another table giving the results

of observations at Morar, taken by Captain Strahan, R.A. who has very kindly placed the statement at my disposal.

Removal of Nynee Tal Observatory to Raneekhet.—In my last report sanction was requested for the removal of the observatory at Nynee Tal to the neighbouring new hill-station Raneekhet. This sanction has now been obtained, and preparations are in full progress to set up the observatory at the latter place. The change of place for this observatory will be an important improvement.

Inspection of Observatories.—In consequence of having taken three months' privilege leave last year, I had no time to make a tour through the observatory stations. Indeed, I could not well have done so with advantage, as the main object of my inspection would have been to compare the various barometers with a standard one; but as yet I do not possess a good standard barometer fitted for this work. This comparison of the barometers at the out-stations must not be forgotten, and I shall endeavour to overtake it for all the stations during the early part of next cold weather, before which time I fully hope to have all the instruments I may require.

Instruments.—There are still a number of deficiencies in instruments at several stations which I cannot supply, as all the instruments bought from Casella of London have been used up in furnishing the six new observatories which were started in the early part of 1868. I am still much in want of both barometers and thermometers. Recently, I indented on the Mathematical Instrument Dépôt at Calcutta for several of the above instruments, and my indent was complied with to the extent of six barometers. These have enabled me to make good some deficiencies. Unfortunately, the Instrument Dépôt at Calcutta could not send me thermometers of any kind and these are much wanted, especially sun and earth radiation thermometers. I would suggest that, as no Government Department can furnish me with these in any reasonable time, I may be allowed a sum of money to purchase from a maker

in London, such as Casella. If this can be sanctioned, I could be supplied in less than six months.

Experiments on Evaporation.—I have nothing further to report under this heading excepting that several attempts were made to construct an apparatus by which the rate of evaporation could be measured on a running stream of water, such as the Ganges Canal; but all my plans have been as yet unsuccessful, and that wholly on account of the force of the current, which renders it extremely difficult to get the necessary steadiness in either a fixed or floating vessel.

Hourly Observations.—Another series of hourly observations have been made, the results of which have been added to a table which will be found among the other tables at the end. The asterisks show the maxima and minima. It may be seen from the table that from the twenty-one observations which have been made, eight only occurred at the hours which are commonly held to be those at which the highest and lowest air-pressures occur every day. These hours are 4 A.M. and 4 P.M. for the lowest, and 10 A.M. and 10 P.M. for the highest. The hours 4 and 10 P.M. are designated in the table 16 and 22. It also appears that where the barometer does not rise to its highest or lowest at the normal hour, then it generally occurs rather in the next hour after than in a preceding hour; thus, in the twenty-one observations made, six of the lowest night readings took place at 5 hours, eight of the highest day at 11 hours, six of the lowest day at 17 hours, and seven of highest night readings at 23 hours.

Monthly Reports.—In the briefer form which was adopted in September, 1868, a report has been published in the *Government Gazette* for every month of 1869. These consist of remarks on the weather, condensed from the monthly registers which are furnished to me. Every observation on barometer pressure, temperature, humidity, and cloud are laid down in separate charts, and these, along with a careful abstract, constitute the material of which each monthly

report is a condensation; therefore, although brief, these reports exhibit fully enough the various changes in the pressure, temperature, and humidity of the air, and also of the wind, along with the occurrence or non-occurrence of rainfall. Whenever it is possible, these changes are grouped together for the places at which they may occur, so as to exhibit the uniformity or otherwise of the weather over the whole North-Western Provinces and Oudh. From September, 1868, the reports were illustrated with a table of temperatures. Since July last this table has been greatly extended, so as to include the barometer pressure for four stations—Roorkee, Agra, Benares, and Lucknow; showing at the same time how it stood in the corresponding months of the two preceding years. I could not include more of the barometer stations than these, as in none were the data complete and trustworthy. There is also exhibited in this table the mean temperature given by observations of four different thermometers, respectively called the maximum in the sun's rays, the minimum on grass. These are intended to show the highest temperature any object well exposed can reach during the day, and the lowest it can reach during the night. The other thermometers are the maximum and minimum in shade; these, again, show the highest temperature in the day and lowest in the night to which any object may rise or fall which is shaded, yet freely exposed to the open air and wind. The mean of these four thermometers which is entered in the table is obtained from the means at all the stations where these instruments are in use. The same operation is gone through with the dry and wet-bulb thermometers, and one of the deductions therefrom—humidity—obtained from these.

It is a subject of regret to me that these reports cannot be published sooner after the months to which they refer than they are now, the interval being at present from five to six weeks. This delayed publication is due to a number of causes. The registers are not all in my hands till the 15th of the month; and monthly reports take proportionally a longer time

to condense than those for a shorter period, such as a week; and, lastly, the printing and revision of the proof also occupy a considerable time. Should Government consider it desirable that the publication should be earlier, then I propose that the registers should be weekly instead of monthly, and some kind of authorized request should be circulated among the officers in charge of the out-observatories, requesting that the weekly register should be posted the day after the completion of each week. On my part, I would endeavour to have the registers abstracted, the charts made, and the report compiled in such a form that when sent to the Government Press it would be unnecessary to submit a proof to me, as any revision that would be required could be done by the Press *employés* themselves. In this way the reports would appear in the next *Gazette* but one after the week of observation.

Lectures at the Agra Medical School.—These were again given by Meer Altaf Alli, who is the Teacher of Chemistry at the school, and is also the Observatory Assistant. The subjects on which he gave instructions were the weight and pressure of the atmosphere, the construction and use of the barometer, thermometer, and the other meteorological instruments. The mode of calculating out certain results from the dry and wet-bulb thermometers was also explained, as well as the method of reading the various instruments in use at the observatories.

A written examination on the subjects of these lectures was held on the 7th of March. The setting of the examination-paper, and the after scrutiny and valuation of the answers, were done by myself. Twelve students were examined, four from the senior and eight from the junior class. The answers given were not so good at this examination as at that of last year. The highest marks were obtained this year by Abdool Hakeem, a junior student, whose total amounted to 39 per cent.; and the second highest were obtained by Ram Lall, senior student—his total was 33 per cent. Last year the totals ran up to 59, 58, and 56 per cent. of full marks.

RETROSPECT OF THE WEATHER AND REMARKS ON THE CLIMATE, N.-W. P., 1869.

THE EARLY COOL SEASON, INCLUDING JANUARY, FEBRUARY, AND
MARCH.

JANUARY.

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	29.202	29.112	29.526	29.423	29.811	29.694	29.876	29.770
1868,	29.194	29.110	29.535	29.426	29.776	29.665	29.872	29.845
1867,	29.190	29.094	29.557	29.458	...	...	29.940	29.852

Year.	THERMOMETER.					HYGROMETER.							
	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade	Dry.		Wet.		Differ- ence.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	118	37	74	46	61	63	72	54	58	9	14	54	42
1868, ...	105	38	70	45	59	60	68	54	58	6	10	65	54
1867, ...	120	39	67	48	62	64	70	56	60	7	10	64	57

The mean barometer readings in January of 1869 did not differ greatly from those of the two preceding years. They were slightly higher in Roorkee and Lucknow, and slightly lower in Agra and Benares. Compared with December, the mean air-pressure was one-hundredth of an inch lower. During the first week of January the barometer rose; on the 8th, 9th, and 10th it had fallen again, but rose rapidly on the 12th, 13th, 14th, and 15th, on which latter day the air-pressure was at its highest for the month. From the 15th it

fell to the 23rd and 24th, which were the days of its lowest readings. From the 24th to the end the pressure rose very slightly, keeping about two-tenths of an inch below the monthly mean till the last day.

The course of the day temperature was very uniform in all the stations; it continued to have an upward tendency till the 23rd, when it suddenly fell, the depression extending through the 24th and 25th. The fall that took place in these three days was seldom less than 16, and was oftener 20 degrees. On the 26th and 27th the temperature as suddenly rose, again to fall on the 28th or 29th, and again to rise on the two last days. These latter fluctuations, however, were much smaller than the great depression of the 23rd, 24th, and 25th. The night temperature, excepting on the 15th, 16th, and 17th, also exhibited a rising movement; but there was no depression on the 23rd, 24th, &c., corresponding to what took place in the day temperatures; on the contrary, while that depression was in progress, the night temperatures were still going upwards, so that the range of temperature from the 24th to the end of the month was very contracted. This was especially the case in Dehra, Roorkee, Meerut, Bareilly, and Futtehghurh, which resembled each other most in their temperature curves.

The weather was dry, cold, and cloudless up to the 19th or 20th. During this period, also, the wind was westerly nearly all over the North-Western Provinces. On the 19th clouds began to gather. In Jhansie, Nagode, and Nowgong, they began to gather on the 16th. But everywhere on the 19th the weather and clouds looked like rain; it grew warmer; the wind lulled or became variable, but seldom changing decidedly. On the 24th rain fell, but only in trifling amount; it was not until either the 27th or 28th that the fall was measurable in most stations. The western and north-western stations had the highest amounts of rain, and the eastern and south-eastern the least. In Jhansie, Azimgurh, Goruckpore, Morar, and Fyzabad, the rain-fall was so little as not to have been measurable. To the coming of this rain all had been

anxiously looking forward, and much disappointment was caused from the circumstance that, for four or five days before any rain fell, heavy clouds formed, sometimes disappearing again, but more frequently remaining, but still yielding no rain.

Some very low temperatures were registered in Roorkee, Meerut, and Agra; the temperature on the grass had sunk as low as 25° on the night of the 3rd at all the three places. The nights of the 1st, 2nd, 3rd, 8th, 9th, 10th, and 15th, gave temperatures all below thirty degrees.

There was some prevalence of small-pox in Agra and Morar in the early part of January, of fever and dysentery in Fyzabad during the last two weeks; but generally the health reports were good.

FEBRUARY.

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	29.114	29.046	29.463	29.349	29.703	29.577	29.782	29.661
1868,	29.094	29.021	29.448	29.351	29.675	29.567	29.771	29.667
1867,	29.099	29.014	29.477	29.383	...	...	29.889	29.764

Year.	THERMOMETER.					HYGROMETER.							
	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	129	47	80	52	67	69	78	57	60	12	18	49	35
1868, ...	112	43	74	52	66	67	77	58	60	9	14	59	44
1867, ...	124	39	76	48	68	66	75	58	62	7	12	62	51

In Roorkee and Lucknow the mean air-pressure was about two-hundredths higher than in the previous year; in Agra and Benares this also held true for the 10 o'clock readings: as in 1867, it was sometimes higher and sometimes lower than in 1868. For the last seven days of January the barometer had been below its monthly mean, and was falling lower for the last two or three days. This lessening air-pressure was continued into the first three days of February. The pressure increased on the 4th, but again dropped on the 5th. It rose again on the 6th, and kept above its monthly mean to the 15th, when it made a further rise through the 16th, 17th, and 18th; but falling rapidly on the 19th, 20th, and in all the more north-westerly stations on the 21st also. On the 22nd the barometer was up again above its monthly mean, and remained thus high, although with a slight falling tendency, to the end of the month. The low air-pressure of the 1st, 2nd, 3rd, and 5th, was accompanied with cloudy weather and high humidity, and the rapid fall on the 19th and 20th, with a lull of the wind in the more north-westerly stations, and a change of the wind from west or north-west to the south in the more eastern and southern stations.

During the first twelve days the temperature was generally lower than all the rest of the month. On the 11th, 12th, and 13th, it rose all over the North-Western Provinces, and nowhere less than 5°. This was especially the case with the day temperatures, which continued markedly to rise till the 22nd, 23rd, 24th, or 25th; generally, the 22nd and 23rd had the highest day temperature. On the three last days the temperature fell somewhat. The night temperatures also rose in the main after the 12th, but they fluctuated considerably; this was more notably the case in Meerut, Bareilly, Lucknow, Chunar, and Benares.

The 1st, 2nd, 3rd, 5th, 6th, and 7th were commonly dull, cloudy days. From this to the 22nd or 23rd the sky was clear, but after the 23rd it was partially overcast. The first-

mentioned cloudy period was a continuation of the dull, wet weather which so generally prevailed at the end of January, and concerning which it has already been remarked that it was accompanied with a falling barometer. The same was the case during the first five days of February; the pressure was, no doubt, higher on the 4th, but it was also a clear, cloudless day. The 5th was a markedly cloudy day, and nearly every station had its maximum rain-fall on that day; but in Azimgurh, Nagode, and Nowgong, the greatest rain-fall took place on the 27th. The increased heat after the 12th was a subject of frequent remark. The steady prevalence of north-west or westerly winds was also a marked feature of the weather of February. Those winds blew nearly all over the North-Western Provinces, except on the first two and the last two days, when a south-east or north-east wind, or a calm, sometimes took its place. The marked lull or change in the wind which took place on the 19th and 20th has already been remarked on. In the station of Ajmere the north-east wind seemed to have taken the place of the north-west which was so frequent in other places.

The health reports were all very good. Nagode was the only place in which the occurrence of cholera was noticed.

M A R C H.

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	29·042	28·972	29·365	29·255	29·611	29·491	29·687	29·581
1868,	29·050	28·974	29·381	29·278	29·607	29·493	29·695	29·580
1867,	29·049	28·951	29·409	29·306	...	...	29·766	29·658

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Differ- ence.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	139	51	87	59	73	77	84	69	66	18	18	50	58
1868, ...	118	50	84	60	74	76	82	61	64	15	19	42	32
1867, ...	127	53	88	59	75	79	87	65	68	14	21	47	39

The mean barometer readings for 1869 were on the whole a little lower than those of 1868 or 1867, the difference being from eight-thousandths to five-hundredths. There were, however, some exceptions to this in the 16th hour observations. The mean air-pressure in March, as compared with February, was very slightly lower. At no place did the decrease exceed one-tenth of an inch; from one to half-a-tenth of decrease was the usual difference. For the last six days of February the barometer had been either at its monthly mean or very slightly above it. In the first three days of March it fell rapidly; it rose on the 4th and 5th, fell somewhat on the 6th, and remained almost at its monthly mean till the 15th, when it quickly rose to the 17th, but falling rapidly from that day till the evening of the 21st, on which date there was rain nearly all over the North-Western Provinces. After the 21st, the air-pressure increased slightly, remaining at or very little above its mean till the end of the month.

It has been remarked that, up to the end of February, especially from the 12th, the temperature had been rising; but in the first seven days of March the temperature fell, but rose after that in all stations till the 12th, 13th, or 14th. In the more north-westerly places it fell on the 15th; in others, as in Goruckpore and Lucknow, the rising continued till the 19th. On the 20th, 21st, or 22nd, a sudden fall took place, but after

that the upward tendency was decided to the end of the month. These fluctuations were observed both in the course of the day and the night temperatures.

Cloudy, dull weather was the rule during March. The 6th and 7th, 14th and 15th, 20th and 21st, were more than usually cloudy days, and on these rain fell in nearly every place. In eight stations the maximum rain-fall of the month took place on the evening of the 6th; in seven stations it took place on the evening of the 21st. These rainy periods were attended with a marked fall in the temperature; this was especially the case with that of the 21st and 22nd. The rain of the 7th was to a slight extent accompanied with a fall of barometer, and that of the 22nd with a very marked fall. The prevailing winds were west or north-west; during, as well as before and after, the rainy days above mentioned, the wind showed a tendency to the eastward.

The health reports were in the main very good.

The early cool season of 1869 very much resembled that of 1868: the first three weeks of the period had dry, clear, cold weather; the cold in the mornings of the first two weeks of January being often intense. Cloudy, wet weather was observed from the 20th of January to the 7th of February; the two middle weeks of February had clear skies, but from the 23rd of February all through March, dull, cloudy weather was the rule. A good deal of rain fell in the stations between the Jumna and Ganges and to the north of the latter river. The season was a healthy one. There was no prevalence of any disease reported from the observing stations in the North-Western Provinces and Oudh.

THE HOT SEASON, INCLUDING THE MONTHS OF APRIL, MAY,
AND FIRST SEVENTEEN DAYS OF JUNE.

The hot weather of 1869 extended over a period of two months and seventeen days. Although it is difficult to

separate sharply a period like this either from the latter part of that which precedes or the former of that which follows it, yet here we have to deal with a period of very high temperature, and in which there was no appearance of the monsoon rains.

APRIL.

Year.		BAROMETER.							
		Roorkee.		Agra.		Lucknow.		Benares.	
		10	16	10	16	10	16	10	16
1869,...	...	28.917	28.832	29.253	29.139	29.458	29.343	29.552	29.436
1868,...	...	28.921	28.838	29.272	29.147	29.477	29.347	29.550	29.442
1867,...	...	28.945	28.849	29.298	29.178	...	...	29.664	29.568

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	154	60	102	69	86	92	100	68	71	25	29	29	22
1868, ...	124	58	98	70	85	89	96	68	69	21	26	38	28
1867, ...	129	62	98	68	87	89	95	72	73	17	24	...	...

The barometer readings were from four-thousandths to one-hundredth lower than in 1868, and from two-hundredths to one-tenth three-hundredths lower than in 1867. It was at Benares where this latter difference was greatest, exceeding the other stations by nearly one-tenth. The mean air-pressures of April were, on an average, 0.10 to 0.15 lower than those of March.

In the end of the latter month the barometer had been at or very little above its monthly mean; at the beginning of April it stood at nearly the same point, from which it fell rapidly to the 8th, on the evening of which day the fall was large and sudden, and was commonly followed on the 9th by a cloudy sky, and sometimes with a slight fall of rain. The air-pressure then increased on to the 11th, after which it steadily fell till the 17th. During this fall, there were two days, generally the 14th and 15th, of unsettled weather, a change of wind from west to east, a gathering of clouds, and in seven stations a slight rain fell, and in all the others it threatened. After the 17th the barometer rose till the 20th, to fall again through the 21st, 22nd, 23rd, and 24th; from thence to the end it kept a very little above its monthly mean.

In several stations, especially from Futtehgurh and westward, the temperature and air-pressure curves in their main features resembled each other, there being a fall of the thermometer and barometer towards the 8th and 17th. In the more easterly stations, however (Chunar, Benares, Goruckpore), there was a decided rise in temperature through the 14th, 15th, 16th, and 17th. High temperatures prevailed all over the North-Western Provinces from the 18th or 19th till the 23rd or 24th, after which the heat moderated slightly.

April was a dry, hot, cloudless month, a hot westerly or north-westerly wind blowing from at least mid-day on to sunset, after which there was either a calm or a very gentle occasional breeze until about noon of the next day, when the hot westerly wind again began. When the wind did change, it was to the east, and with this change came clouds and slight rain, as on the 14th and 15th. The nights, and more so the mornings, were cool and pleasant. Punkahs came into general use during the day hours on the 20th.

There was some cholera and small-pox prevailing, but chiefly among the Native communities.

M A Y.

Year.		BAROMETER.							
		Roorkee.		Agra.		Lucknow.		Benares.	
		10	16	10	16	10	16	10	16
1869, ...	...	28.758	28.661	29.063	28.962	29.322	29.192	29.394	29.285
1868, ...	...	28.874	28.790	29.179	29.073	29.443	29.292	29.502	29.404
1867, ...	...	28.787	28.684	29.140	29.046	...	...	29.416	29.318

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	160	75	110	82	96	100	108	75	76	25	32	34	25
1868, ...	137	66	104	75	90	95	101	73	74	22	27	34	25
1867, ...	130	67	105	77	91	95	101	73	74	22	27	38	29

The mean height of barometer in May, 1869, was on an average one-tenth lower than in May, 1868, and half-a-tenth lower than in May, 1867. At the end of April, 1869, the barometer was nearly at the mean height it had been throughout the month, while at the beginning of May it stood very nearly at its highest with reference to the rest of the month. The high barometer continued through the first seven days, after which it fell almost steadily to the 19th, but the 20th, 21st, and 22nd also had very low air-pressure; on the 23rd or 24th it rose very slightly, but it continued decidedly below the monthly mean on to the end. The mean air-pressure for May was fully one and a-half-tenths below that for April. It is worth notice that the period of lowest air-pressure was also that of highest temperature.

In the first week of May the wind was very commonly east or south-east, and continuing in this direction throughout the day, or dying down to a calm. After the first seven or eight days, and on to the end of the month, the wind became west or north-west towards mid-day, and kept in this direction till sunset. During this period there was frequently a change of the wind to the east or south-east, especially in the last ten days. Only slight sprinklings of rain fell, almost always along with, or immediately after, dust-storms. These latter were not very numerous, and were comparatively mild. At Agra, however, on the 26th and 29th, somewhat violent circular storms were observed; and at Nynsee Tal, on the 26th, an unusually severe storm for the hills occurred, doing considerable damage to the buildings of the Convalescent Dépôt. But the most notable feature of the weather in May was the great heat; it was a subject of common remark; and it is well borne out by the temperatures quoted above, at least with reference to the two preceding years. It was in the last 10 or 12 days of the month that the heat was highest. The 19th, 20th, 21st, and 22nd were very hot days, and during the same period the atmospheric pressure was at its lowest.

THE FIRST SEVENTEEN DAYS OF JUNE.

Year.		BAROMETER.							
		Roorkee.		Agra.		Lucknow.		Benares.	
		10	16	10	16	10	16	10	16
1869, ...	...	28.654	28.557	28.933	28.880	29.219	29.100	29.294	29.180

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	156	79	110	86	99	101	107	78	77	22	31	38	26

During this period the mean barometer readings had fallen about one-tenth compared with May. In the last six days of that month the barometer was below its monthly mean; on 1st of June nearly two-tenths above its mean. From this date it dropped steadily till the 8th, rising thence to the 16th, 17th, and 18th; when there was a change of weather, which was accompanied by a falling of the air-pressure.

The mean temperature remained within a degree or two of 100° , but the 9th, 10th, 11th, 12th, and 13th were a very little cooler. Some very high temperatures in the shade were registered during this part of June. On the 5th, 6th, and 7th, which were very hot days, it rose to 115° in several places.

The general appearance of the weather during the first half of June was decidedly that of the hot season. High temperatures prevailed both day and night. The humidity of the atmosphere was much smaller than in the latter half. The wind was from the north-west or west, and was dry and hot. No clouds were seen, or they were seen only very imperfectly, on account of the hazy aspect of the sky and horizon—a very constant feature of the hot weather.

GENERAL REMARKS ON THE HOT SEASON OF 1869.

The barometer stood lower than it had done in the two previous years. In April the temperature was nearly the same as in 1868 and 1867, but in May and the first part of June it was much higher. The whole season was very dry, but not more so than in the other years. But the determination of the humidity of the atmosphere as at present carried on is far from being an accurate process; too much reliance, therefore, should not be placed on the results on which the above statement is made.

The characteristics of the hot season are that the barometer gradually drops, but this is also true of February and March: it does not reach its lowest till the south-west monsoon has set in, and the dry, hot weather over. The tem-

perature always reaches its highest point for the year in this season, and this it does about the end of May.

Judging simply from inspection of the hot weather, and leaving instruments out of view, there can be no doubt that it is the dryest part of the year. Evaporation proceeds, as may be supposed, with great rapidity: a large body of water will lose as much as half-an-inch of its depth in 24 hours.*

THE RAINY SEASON

Includes this year the last thirteen days of June, all July, August, September, and October:—

THE LAST THIRTEEN DAYS OF JUNE.

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	28·604	28·577	28·880	28·772	29·158	29·049	29·223	29·142

* For the sake of continuity, I have thought it as well to insert here the table of mean barometer, &c., for the whole of the month of June:—

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	28·632	28·532	28·938	28·832	29·192	29·078	29·263	29·167
1868,	28·678	28·581	28·996	28·898	29·228	29·119	29·325	29·224
1867,	28·695	28·617	29·027	28·940	...	...	29·323	29·239

Year.	THERMOMETER.					HYGROMETER.							
	Maximum in Sun's Rays.	Minimum on Grass	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	154	78	106	83	95	97	104	79	78	18	26	45	36
1868, ...	122	77	101	81	91	93	98	78	80	15	18	54	55
1867, ...	128	76	102	79	90	92	97	78	79	14	18	54	49

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	147	74	106	84	95	97	102	80	80	16	21	52	44

This period was characterised by a falling barometer. The mean difference between the two periods of June ranged from five-hundredths to one-tenth. The lowest barometer reading occurred on the 25th.

There was no great difference between the mean temperatures in shade; they were lowered four to six degrees only. There were, of course, considerable depressions of temperature on or before the days on which rain fell: depressions of as much as twelve degrees were then observed. It should be mentioned, however, that there was a rise of temperature through the 20th, 21st, 22nd, and 23rd, but in many places the rise stopped on the 22nd.

The greatest difference between these two periods of June, as shown by the instruments, was in the humidity, the mean readings of which were a good deal higher in the latter than the former period; at 10 hours being 52 against 38, and at 16, 44 against 26.

The weather during this latter part of June may be described as follows:—About the 17th, the indication of a change took place; but in many places it was so unimportant as not to attract notice. When it was noticed, the wind had become more or less easterly, and clouds appeared, and it felt cooler in those places where slight rain fell. The change of weather was more decided on the 23rd or 24th, on the latter of which rain fell in nearly all the stations, and especially in the more

eastern districts. The 25th, 26th, and 27th were also days on which rain fell. It fell heavily in Roorkee on the early morning of the 27th. After this rain the temperature was more moderate, the wind continued to the end to be east or south-east, and the clouds to be more numerous. On the last day of the month there was again rain in many places. The south-west monsoon may be said to have commenced a day or two past the middle of June; but its effects were not very apparent till the last seven or eight days.

None of the registers contain notes of any diseases being very prevalent, but cases of heat-apoplexy were reported to be of frequent occurrence.

JULY.

Year.			BAROMETER.							
			Roorkee		Agra.		Lucknow.		Benares.	
			10	16	10	16	10	16	10	16
1869,	...	...	28.685	28.606	28.977	28.887	29.232	29.163	29.299	29.217
1868,	...	...	28.694	28.613	28.996	28.909	29.231	29.134	29.328	29.234
1867,	...	...	28.677	28.605	29.012	28.939	...	...	28.268	29.220

THERMOMETER.						HIGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869,	145	76	93	78	86	88	91	80	81	8	10	71	66
1868,	139	74	98	81	89	91	39	80	80	11	13	60	57
1867,	122	78	93	78	84	87	89	80	80	7	9	70	63

The mean heights of the barometer in Roorkee and Benares in July, 1867 and 1869, were very nearly the same, and these were slightly lower (one to two-hundredths) than in July, 1868. In Agra, the mean barometer was two-hundredths lower than last July, and then it had been the same amount lower than in 1867. In Lucknow, the comparison is for two years only, and the difference noticed is that, at 16 hours the barometer was nearly three-hundredths higher than last year. The mean height of barometer in July was from two to six-hundredths higher than in the previous month. On the 1st of July the air-pressure was a very little greater than it had been on the 30th of June. From the 1st it fell about one-tenth to the 4th or 5th, rising thence about two-tenths to the 8th, 9th, and 10th, falling again on the 11th and 12th, rising again on the 13th, to fall once more on the 15th and 16th. After this it rose to its mean monthly height, or even a little above that, and it now continued pretty steady to the end of the month. There were two maximum periods, the 9th and 10th, and the 30th and 31st, and two minimum periods, the 4th and 5th, and the 12th, 15th, 16th, and 18th.

The temperature had shown a falling tendency about the end of June, and this was continued in to the first four or five days of July, and this was noticed in all the stations. After the 5th the course of the temperature was not very uniform over the North-Western Provinces. Although when charted out the curves have a general resemblance, yet there are many great differences in detail, and these render it almost impossible to convey in words a general description of the course of temperature. This same want of uniformity is observable in the rain-fall also. At the same time, when the rain fell in marked quantity, there was always a depression of temperature, either along with the rain or immediately after it. This, however, is such an ordinary phenomenon of the rain that it would hardly have been noticed were it not that the want of uniformity in the time of the rain-falls in

July may account for the want of uniformity in the temperature.

The general feature of the weather this July, as far as the mean readings of the thermometer and hygrometer are concerned, is shown by the table above to be not unlike those of 1867; while it was about two degrees cooler, and to the same extent more humid, than July, 1868. But along with this statement must be taken the contrary fact that the rain-fall this July was generally less than in 1868, and much less than in 1867. The stations which prove exceptions to this are Lucknow and Jhansie. The following total rain-falls for the last three years will exhibit the above:—

Stations.			1869.	1868.	1867.
Dehra,	...	...	20·69	21·30	25·30
Roorkee,	...	...	8·04	10·81	13·39
Nynce Tal,	...	...	10·90	20·25	15·20
Meerut,	...	...	7·60	8·83	14·77
Bareilly,	...	...	8·45	9·65	16·80
Agra,	...	...	6·00	12·50	12·70
Lucknow,	...	...	16·86	8·90	27·30
Goruckpore,	...	...	6·20	9·10	18·50
Ajmere,	...	...	4·65	6·38	7·00
Benares,	...	...	12·75	9·75	13·60
Jhansie,	...	...	29·83	9·40	23·60

A notable rain-fall took place at Lucknow on the 10th, when $7\frac{1}{2}$ inches of rain fell, the day previous nearly $1\frac{1}{2}$ having fallen—giving in the 48 hours a total of nearly 9 inches. This was exceeded at Jhansie, when, on the 23rd, 9·3 inches fell, the previous day giving 1·4, and the succeeding day (the 24th) 4·6 inches; thus over 15 inches of rain fell within 72 hours.

AUGUST.

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	28.759	28.669	29.064	28.964	29.325	29.210	29.406	29.305
1868,	28.703	28.622	29.034	28.946	29.269	29.171	29.370	29.289
1867,	28.738	28.654	29.047	...	29.275	29.169	29.374	29.289

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869,...	147	76	93	79	86	89	92	81	82	8	10	72	69
1868,...	143	76	95	83	89	90	95	80	81	10	14	68	65
1867,...	118	77	90	81	85	84	87	78	80	6	7	72	70

The mean barometer in August, 1869, was about four-hundredths of an inch higher than in August of last year, and about three-hundredths above the mean reading of 1867. The increased air-pressure is very marked in Roorkee and Lucknow, where the differences are '052" and '048" respectively between the readings of 1868 and 1869. As compared with the mean height of the barometer in July, there is a marked rise, amounting to about '075 of an inch. The range of the barometer during the month was on an average about '265 inches, but the fluctuations were very numerous, and were closely alike in all the stations. The days of minimum pressure during the month were the 1st, 6th, 10th, 18th, 23rd, and 29th; and those of maximum pressure the 4th, 9th, 13th, 14th, 20th, and

28th. The 13th and 14th showed the maximum readings in almost all the stations.

The temperature recorded shows an average maximum heating power in the sun's rays higher by 4° and 29° respectively than in 1868 and 1867. The mean temperature in the shade is 3° lower than that of 1868, and nearly the same as that of 1867. Generally the temperature rose from the 1st to the middle of the month, falling again at the end to about $1\frac{1}{2}^{\circ}$ lower than that which prevailed at the beginning. There are considerable fluctuations caused by local falls of rain; but the above-noted fact is well marked in the charts.

The weather, though drier and warmer than in 1867, was again cooler, more humid, and more favourable to agricultural prospects (towards the latter half of the month at least) than the same month in 1868. The rain-fall was in all stations, except Chuckrata, greater than in 1868, though not up to the average. The difference between 1868 and 1869 was much more marked in the plain-stations than in those in and near the hills.

The following table exhibits the total rain-fall for August of 1867, 1868, and 1869 :—

Stations				1869.	1868.	1867.
Chuckrata,	...	...	...	4.07	9.17	...
Dehra, ...	...	...	...	16.85	12.88	19.40
Roorkee, ...	...	...	...	6.91	1.43	13.90
Nynsee Tal,	...	...	...	21.85	19.00	25.75
Meerut,	...	...	...	3.39	0.20	18.87
Bareilly,	...	...	...	5.58	0.60	10.60
Futtehgurh,	...	...	...	4.02	3.51	...
Agra,	...	...	...	2.50	1.30	11.10
Lucknow,	...	...	...	5.52	3.70	4.90
Goruckpore,	...	...	...	12.50	6.00	8.80
Ajmere, ...	...	...	...	1.55	0.85	13.92
Allahabad,	...	...	...	7.15	0.79	10.30
Benares, ...	...	...	...	6.92	4.05	7.85
Jhansie, ...	...	...	...	3.34	0.90	12.30

Rain appeared in few stations till the 17th or 18th, and the greater part fell about these dates and towards the end of the month.

SEPTEMBER.

Year.			BAROMETER.							
			Roorkee.		Agra.		Lucknow.		Benares.	
			10	16	10	16	10	16	10	16
1869,	...	...	28.843	28.736	29.126	29.018	29.372	29.263	29.451	29.344
1868,	...	...	28.838	28.743	29.160	29.054	29.396	29.286	29.469	29.368
1867,	...	...	28.808	28.720	29.133	29.033	29.324	29.223	29.428	29.340

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	143	73	91	74	83	85	87	79	80	6	7	78	73
1868, ...	140	71	94	78	85	89	94	78	78	11	16	59	44
1867, ...	117	75	88	79	84	86	89	79	80	7	9	68	64

There was not, by any means, the same uniformity in the movements of the barometer for the month of September as was noted in the report for August; but there was a general rise of about a tenth of an inch from the first to the middle of the month, from which time there was a fluctuating fall of five-hundredths of an inch to the 25th (on or about which date heavy rain fell in all stations), followed by a rise towards the end of the month to nearly the same height as was attained in the middle.

The range of the barometer was slightly greater in the eastern stations than in the westerly ones—being about 31-hundredths in the former against 29-hundredths in the latter. The mean barometer was five-hundredths of an inch higher than that of the preceding month, and, as compared with the means for the same month in 1868 and 1867, was on the

whole a little higher than the latter, and nearly the same as the former. It will be seen from the selected mean readings given above, that this is not uniformly true, as in Agra the readings of 1867 and 1869 are nearly equal, while the mean of 1868 is three-hundredths higher than that of the month now under review.

The mean temperature during the month was lower by 1° and 2° respectively than that of the same month in 1867 and 1868, and the thermometer was not subject to any sudden or great fluctuations, though there was a fall of about 2° from the mean readings of the first ten to that of the last ten days of the month. This is probably due to the low temperature produced by the rain of the 25th to 28th. The month was chiefly remarkable for the extraordinary amount of rain, which was more general than in any of the preceding months this year, and universally heavy in the last five or six days.

The annexed table shows that the rain-fall in the western stations was very much greater than that of the two previous years, and that in the eastern stations, Benares, Allahabad, Goruckpore, and Lucknow, it was much in excess of that for 1868, but in the three former not quite equal to that of 1867.

STATION.	Rain-fall in September.			Total Rain-fall from 1st June to 30th September.		
	1869.	1868.	1867.	1869.	1868.	1867.
Chuckrata, ...	10.30	2.52	...	26.94	11.65	...
Dehra, ...	22.62	3.04	5.80	63.34	54.07	57.80
Roorkee, ...	9.04	1.09	6.80	26.42	17.57	42.14
Nynsee Tal, ...	14.15	2.07	3.35	51.07	58.52	81.65
Meerut, ...	3.83	0.10	1.40	15.07	11.09	37.66
Rareilly, ...	19.91	4.30	7.70	34.54	20.30	42.42
Butehgurh, ...	9.72	5.11	0.00	27.79	11.62	...
Agra, ...	12.10	0.17	1.20	20.80	5.17	28.14
Lucknow, ...	13.16	8.12	8.10	35.73	24.12	47.80
Goruckpore, ...	9.70	2.10	10.10	29.45	20.48	41.80
Ajmere, ...	14.60	0.00	1.66	20.80	8.33	23.95
Allahabad, ...	18.30	0.00	20.90	25.45	11.09	49.90
Benares, ...	9.92	5.85	12.65	33.19	29.75	39.40
Jhansie, ...	9.90	2.20	6.40	53.07	14.50	51.20

The unusual amount of rain during the month, distributed as it was over insome stations not less than twenty-five days out of the thirty, was so favourable to the autumn crops that the fears of failure, which had previously been entertained, were thus entirely removed.

The same fact made the month an unusually pleasant one for the season,

The returns from the various stations make no mention of any generally prevalent sickness ; but in Roorkee, towards the latter end of the month, fever prevailed among the residents of the city.

OCTOBER.

Year.		BAROMETER.							
		Roorkee.		Agra.		Lu cknow.		Benares.	
		10	16	10	16	10	16	10	16
1869, ...	...	28.990	28.908	29.312	29.221	29.546	29.448	29.634	29.537
1868, ...	...	29.025	28.938	29.348	29.248	29.591	29.490	29.667	29.575
1867, ...	...	29.036	28.952	29.360	29.270	29.617	29.516	29.692	29.587

THERMOMETER.						HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
						10	16	10	16	10	16	10	16
1869, ...	136	58	87	64	76	81	85	71	72	11	13	62	54
1868, ...	126	54	95	65	81	87	93	69	77	17	23	40	37
1867, ...	117	59	88	65	80	83	86	71	71	12	15	54	46

The barometer in all the stations stood nearly three-hundredths lower than in October, 1868, and then it had stood from one to two-hundredths lower than in October, 1867. The mean height of the barometer was from one and a half to two-tenths higher than in the previous month of September. Allowing for this difference of mean height, the air-pressure showed a tendency to become less on the 1st of October compared to what it had been on the last day of September. This

falling barometer continued with a very slight interruption on through the 6th and 7th to the 9th, on which day it had reached its lowest point for the month; from the 10th the barometer rose to the 13th, fell slightly on the 14th, rose again on the 15th, 16th, and 17th; after which it fell to the 21st, then rose rapidly to the 23rd and 24th, on the last of which days it had reached its highest point for the month. On the 25th it fell rapidly, but rose on the 26th, 27th, and 28th; a slight fall again took place on the 29th and 30th, which was followed by a slight rise on the last day.

The temperature curves for all the stations all agree in showing a marked fall on the 10th, previous to which day the temperature had been fluctuating; no two stations, except those within moderate distances of each other, such as Lucknow and Goruckpore, giving curves resembling each other. After the 10th the heat had an increasing tendency till the 12th; but after this the fall to the end of the month was pretty steady over all the North-Western Provinces. This was more specially the case with the minimum in shade thermometer. The second table given above shows a marked contrast in the day temperatures of October, 1867 and 1869, as compared with 1868, the latter being nearly eight degrees higher—a fact which must be connected with the greater dryness of this month in 1868 compared with 1867 and 1869.

The first ten or twelve days of October were in marked contrast to the rest of the month. The former were dull and cloudy, with the wind blowing from a general easterly direction, such as north-east, east, or south-east. On the 11th or 12th, the wind in most of the stations veered to a westerly direction, very often north-west, the clouds cleared away, and bright, fair weather, gradually getting cooler, prevailed to the end of the month. It will be seen that the period of cloudy, unsteady weather at the beginning of the month was attended with a falling barometer. It was during this period, also, that all the rain of the month fell; the 2nd, 3rd, 4th, 7th, 8th, 9th,

and 10th were notably rainy days. In Allahabad nearly twelve and a half inches of rain fell on the 7th, 8th, and 9th. On the same days heavy rain fell in Goruckpore and Fyzabad.

STATION.	Rain-fall for October.			Rain-fall from 1st June to 31st October.			Rain-fall from 1st January to 31st October.		
	1869.	1868.	1867.	1869.	1868.	1867.	1869.	1868.	1867.
Chuckrata,...	0.77	0	...	27.71	11.65	...	40.28	...	...
Dehra, ...	2.41	.05	0	65.75	54.12	57.80	74.84	67.60	64.50
Roorkee, ...	1.16	0	0	27.58	17.57	42.14	34.11	26.56	46.48
Nynsee Tal,...	14.30	0	7.40	71.37	58.52	89.05	80.07	77.12	104.25
Meerut, ...	0.50	0	0.70	15.57	11.09	38.63	18.97	...	43.14
Bareilly, ...	3.50	0	...	38.04	20.30	41.42	40.89	...	44.92
Futtehgurh,	3.85	0	...	31.64	11.62	...	31.86	...	...
Agra, ...	3.70	0	1.02	24.50	5.17	29.16	26.55	6.52	29.86
Lucknow, ...	4.11	0	6.20	39.84	24.12	54.00	49.01	27.34	56.60
Fyzabad, ...	12.50	0	2.60	58.80	33.40	66.80	61.00	37.32	75.16
Goruckpore,	10.50	0	3.00	39.95	20.48	44.80	40.35	...	51.30
Ajmere, ...	0.20	0	0	21.00	8.33	23.95	23.75	9.75	25.45
Allahabad, ...	15.52	0	1.90	40.97	11.09	51.80	40.97	...	54.10
Benares, ...	4.90	0	1.70	38.09	29.75	41.10	38.84	31.43	44.99
Jhansie, ...	5.50	0	4.00	58.57	14.50	55.20	59.87	23.20	55.60

GENERAL REMARKS ON THE RAINY SEASON OF 1869.

This season in 1869 was far from being normal. We have seen that the hot weather lasted well into June, and that no rain fell till in the third week of that month. In July the rain was more frequent, and especially was this the case in the more easterly provinces. The 3rd to 8th, 11th to 14th, and 24th to 28th, were groups of wet days all over the North-West. But, although rain fell thus frequently in July, yet

the total falls were generally less than in 1868, which was a year notable for its diminished rains. In August the rain-falls were less numerous than in July, and here, again, this was most conspicuous in the more western than in the eastern provinces. The amount of rain which fell in August, 1869, generally far exceeded that which fell in 1868; in fact, in the latter the diminished rain-fall of August was very striking. In September, also, we had a great contrast between 1868 and 1869. In 1868 the amount of rain, except in the eastern provinces, was very small, while in 1869 it fell frequently and heavily all over the North-Western Provinces. In October the rain was confined to the first eight or nine days, but in these it rained heavily, giving a total fall which contrasted strongly with 1868, when no rain whatever fell. The rain of September and October raised the annual fall to nearly the average amount.

The abnormality of the rainy season of 1869 consisted in a postponement of the regular rains rather than a failure in the amount. A postponement of the rains appears to be a great evil in India, as the crops are sown at a time which enables the young plants to attain to that condition at the time when the rains are due when moisture will do much for their further development. But if no rain falls then, or shortly afterwards, then the high heat of the sun soon destroys the life of the plant, so that when the rain does come it falls on only the remains of the living plant, incapable of receiving benefit from its moisture.

There is no adequate explanation of this postponement or failure in the rains; but Mr. H. F. Blanford, the Reporter on Meteorology for Bengal, has called attention to two areas over which diminished air-pressure existed during the rainy months of 1868 and 1869. The area in 1868 was observed at Saugor Island and False Point at the mouth of the Hooghly, and it probably extended over a large part of the Bay of Bengal in the northern section. The area of 1869 had its centre at

Berampore at first, but in July it moved upwards and westwards to Monghyr and Patna, and there the centre remained for the rest of the rains. An area like this, over which diminished air-pressure prevailed, must have acted as a drain on the atmosphere all around, and possibly drew to itself the moist air of the south-west monsoon, instead of allowing it to find its way to stations more to the north-west. But nothing further can be said on this point until Mr. Blanford gives his observations *in extenso* to the public.

THE LATTER COLD WEATHER

Includes the months of November and December:—

NOVEMBER.

Year.	BAROMETER.							
	Roorkee.		Agra.		Lucknow.		Benares.	
	10	16	10	16	10	16	10	16
1869,	29.175	29.083	29.513	29.401	29.753	29.642	29.832	29.729
1868,	29.135	29.047	29.465	29.362	29.726	29.604	29.792	29.690
1867,	29.197	29.114	29.523	29.445	29.784	29.666	29.833	29.777

THERMOMETER.							HYGROMETER.							
Year.	Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Differ- ence.		Humidity.		
						10	16	10	16	10	16	10	16	
1869, ...	130	42	82	50	67	72	88	61	63	11	25	51	41	
1868, ...	133	41	87	53	71	78	84	62	63	16	21	41	31	
1867, ...	113	47	80	54	73	75	81	62	64	13	17	47	38	

The barometer was from three to four-hundredths higher in November this year than in that of last; but in November of 1867 it was higher than it was this year by from two or four-hundredths. The mean height of the barometer was nearly two-tenths higher than in the previous month. From the middle of October the air-pressure showed a tendency on the whole to keep high. On the 1st November it was a very little above the monthly mean, but fell from thence to the 4th, rose again on the 5th, and continued rising till the 9th, and remained moderately steady till the 15th. The 16th, 17th, and 18th had a falling barometer; the 19th and 20th a rising one; on the 21st and 22nd it was again falling; on the 23rd it rose swiftly, and still more so on the 24th, on which day the air-pressure stood at its highest for the month; from the 24th it steadily fell to the end of the month, the last day showing the lowest barometer of the month: it was then about one-tenth below the monthly mean.

The temperature generally fell from the beginning to the end of the month. In the two hill-stations, however—Chuckrata and Nynce Tal—the temperature rose suddenly during the last three or four days, so much so that the temperatures of the last two days were the highest recorded in the month. The same rising tendency at the end of the month was noticed at Futtehgurh and Agra, but to a much less extent. November, 1869, was cooler and more moist than the same month of 1868, but hardly more so than that of 1867.

There is but little to remark on the weather of November. No rain fell; clouds were scarcely ever seen. There was a great prevalence of light winds from a general westerly direction, that is, north-west, south-west, or west. The heat of the day never rose very high; the evenings, and still more so the mornings, were cool, dry, and agreeable. Yet the month, like the preceding one, was not a healthy period; there was most unusual prevalence of fever all over Upper India, including

the whole of the Punjab, as well as a large part of the North-Western Provinces. I regret that I can publish but little on the state of health in connection with the meteorology of the North-Western Provinces; for, although repeatedly called for, the registers sent either contain no health notes, or those of the most meagre kind.

DECEMBER.

Year.		BAROMETER.							
		Roorkee.		Agra.		Lucknow.		Benares.	
		10	16	10	16	10	16	10	16
1869, ...	...	29.160	29.084	29.500	29.396	29.778	29.643	29.824	29.723
1868, ...	...	29.211	29.116	29.541	29.430	29.812	29.693	29.880	29.772
1867, ...	...	29.242	29.157	29.580	29.473	29.826	29.710	29.918	29.812

Year.		THERMOMETER.					HYGROMETER.							
		Maximum in Sun's Rays.	Minimum on Grass.	Maximum in Shade.	Minimum in Shade.	Mean in Shade.	Dry.		Wet.		Difference.		Humidity.	
							10	16	10	16	10	16	10	16
1869, ...	...	121	39	76	47	62	65	72	56	60	9	12	58	56
1868, ...	...	122	35	73	47	63	67	76	56	59	11	17	52	44
1867, ...	...	99	41	72	48	63	65	72	57	60	8	12	62	51

The barometer stood nearly five-hundredths less this December than in the corresponding month of 1868, and then it had stood from three to four-hundredths less than in 1867. The air-pressure was a very little less in December than in November. It was noticed in the report for last month that the barometer showed a falling tendency during the last six

days. This falling continued into December, reaching its lowest point in most places on the 3rd, but still remaining low on the 4th and 5th. From this date till the 15th the air-pressure rose again, to sink on the 16th, 17th, and 18th; then rising very slightly on the 19th, 20th, and 21st, more quickly on the 22nd, 23rd, 24th, and 25th, on which latter date the highest reading of the month was recorded. From 25th to the end it fell but very slightly.

From the beginning to the middle of the month the weather got colder; but the temperature in nearly all the stations rose on the 18th or 19th, to fall, however, rapidly towards the 24th or 25th—this latter fall corresponding with the rainy period of the month. After this the temperature in some places rose on the 27th and 28th, again to fall to the last day; but in many stations this rise did not occur, but a steady fall went on to the end; this was noticed in the southerly and easterly stations.

The general weather noticed in most of the stations during December was to have a clear, dry, and cold period for the first twelve days, or even for the first half of the month. After this, clouds began to gather and rain appeared near. It fell in some places as early as the 18th or 19th, but the 20th was the more frequent day; and this first fall was followed by a heavier one the next day, the 21st. In the easterly stations the cloudy sky continued till the 25th, and on that day, or the preceding one, a slight fall of rain took place. In a great many stations, however, the maximum rain-fall of the month occurred on the 25th. All over the North-Western Provinces in the last week of December there was clear, cold weather.

The notes on the health of the stations furnished to me were all satisfactory.

GENERAL REMARKS ON THE LATTER COLD WEATHER OF 1869.

It is in this part of the year, along with the first three months of the succeeding year, that the cold weather exists.

In 1869, excepting on the 18th and 19th of December, there was a steady drop of the temperature from the 1st of November to the end of the year; but the decrease of temperature does not stop at this time, but goes on through the first half of January. The barometer rises, while the thermometer falls. The cooler any place is it has more air over it, and consequently more pressure or weight bearing on it. The year 1869 showed no exception to this rule; air-pressure increased nearly all through the period.

From the 20th to the 25th of December, the only rain of this part of the cold weather fell. This is quite a usual occurrence.

The wind had a general westerly direction, except during the period of rain.